



INSIDE DOPE

by GEORGE F. TAUBENECK

Story of the Week
Gag of the Week
Inventors and Inventions
Invention Through the Ages
A New Theory
Incentive for Inventions Lacking
Summary

Story of the Week

"Have a good time at the party?"
"Er... well... I had a good party at the time."

Gag of the Week

And then there was the Absent-Minded Professor who kissed his students "good-bye" and went home to give his wife a thorough examination.

Inventors and Inventions

Flakice Corp.
New York City

Dear George:

1. Commendation upon your mention of Rose Wilder Lane's discovery of the Saracen Empire and your comments thereon in "Inside Dope."

2. Good as the points you make, however, I think you have overlooked one other essential of the comparison between Saracen and American civilizations—that is, the inducement of the invention flow by the American patent system which takes the idea out of nothingness and makes it profitable to exploit it for the benefit of the common man.

3. I have dealt with this theme in a series of addresses that I am giving before many groups. The notes for these addresses I enclose.

4. I address you as a true Fellow American. Neither of us is in any way a fellow traveler, but we certainly could call ourselves "Fellow Marchers."

CROSBY FIELD
President

Answer: Dr. Field's "notes" were so interesting that we have culled from them and edited the following pregnant paragraphs, several of which have been condensed for brevity purposes. (Space in this column is rigidly limited.)

Invention Through the Ages

"We are living in an age of rapid mechanical advancement. Our daily problems include the question of which new improvement we should buy, whether we should wait and save to get something perhaps a little better a little later. This applies to our consideration of most everything, from automobiles to household utensils. It is hard, therefore, for us to conceive of a civilization in which the average man, such as you and I, could live an entire lifetime in exactly the same way that had lived his father, his grandfather, and his ancestors up to thirty generations. Yet that was the fate of the average man most everywhere in Western Europe for a thousand years.

"Then the common man was wholly ignorant of mechanical invention, and his life was unchanged by it. Let us have a brief glance at inventions through the ages, and discuss their effect, if any, upon the life of the common man. This would appear to be a rather large subject were it not simplified by two facts. The first is that the physical surroundings of the common man were not noticeably improved for centuries. The second is that increasing mechanical improvements enjoyed by the common man always eventuate into the abolition of slavery. Where slavery ex-

(Concluded on Page 12, Column 1)

No Drop In Steel Allocations Seen for First '49 Quarter

NEW YORK CITY—Neither General Electric Co. nor Westinghouse Electric Corp. expects steel allocations to appliance producers will be reduced in the first quarter of 1949 because of the expanded European Recovery Program and industrial mobilization requirements, spokesmen for the companies indicated here recently.

J. H. Ashbaugh, vice president in charge of Westinghouse's electric appliance division, pointed out that allocations for the first quarter of 1949 are not yet completed.

"However," he was quoted as saying, "we have no reason to believe that they will not be about the same as for the last quarter of 1948. Every indication seems to point to appliance production during the first quarter of 1949 at least equal to the last quarter of 1948."

(Westinghouse reportedly plans to increase production of refrigerators by from 25 to 30% next year.)

A spokesman for General Electric said his company "does not anticipate any steel shortages for appliance production in the first quarter of 1949 because of ERP and industrial mobilization demands."

Coolerator, Admiral Set Time-Pay Plans

CHICAGO—Nationwide financing agreements with the Commercial Credit Corp. to cover instalment sales on their products were announced here last week by the Admiral Corp. and the Coolerator Co. of Duluth, Minn.

Ross D. Siragusa, president of Admiral, whose refrigerators, electric ranges, radios, radio-phonographs, and television sets will be covered by the agreement, stated:

"The need for a low-cost, convenient time payment plan is greater than ever today. We believe that Admiral dealers and purchasers of our products will welcome this easy means of selling and buying them."

W. C. Conley, Jr., Coolerator sales manager, announced the arrangement at a sales meeting here. Coolerator refrigerators, freezers, and electric ranges will be covered. No details of the plan were revealed.

Fred Merritt Assumes Key Post With USAirco

MINNEAPOLIS—Appointment of Fred B. Merritt as manager of the new packaged air conditioning sales division of the U. S. Air Conditioning Corp. was announced here recently by the company.

Merritt comes to his new position from eight years with the General Refrigeration Div. of the Yates-American Machine Co. of Beloit, Wis., where he was district sales manager and specialized in sales, merchandising, and application engineering.

Before joining the Yates company, he spent 10 years with the Kelvinator and Norge organizations, where his activities included working with distributors and dealers on sales and application engineering.

The United States Air Conditioning Corp. recently acquired the Great National Air Conditioning Corp., with factories at Dallas and Corsicana, Tex.

Freezer Sales Up 31% for Sept., NEMA Reports

NEW YORK CITY—Home and farm freezer sales for September were up 31% over August, 34 companies reported to the farm and home freezer section of the National Electrical Manufacturers Association recently. Total sales for the month by these firms were 45,733 units as compared with 34,448 in August.

Total sales by Nema firms for the first nine months of the year were 363,132, of which all but 3,333 were sold in this country.

As compared to August, the sale of units of between 7 and 8.9-cu. ft. capacity more than doubled, Nema figures showed. Where 6,022 were moved in August, 13,354 were sold in September. That spurt put this category far ahead of all others in number of units sold.

Gains in the 13 and 16.9-cu. ft. capacity group were equally spectacular. Sales of this size unit rose from 2,330 in August to 5,018 in September.

The number of 60-cu. ft. and over freezers sold in September was 11 as compared to 6 in August.

Smaller gains were recorded in the 5 to 6.9-cu. ft. and the 11 to 12.9-cu. ft. categories. Declines were reported in the less than 4.9-cu. ft. class, the 9 to 10.9-cu. ft. group, and all categories between 17 and 49.9 cu. ft.

Foreign sales for September were 504 units as compared with 97 units in August.

4 Named In Reorganized Setup at Sporlan Valve

ST. LOUIS—Sporlan Valve Co. here, manufacturer of expansion valves and other control devices for refrigeration and air conditioning, has established a new sales executive setup to handle expanding operations.

The executive position of controller and director of customer relations has been created, with the aim of enabling top management to spend more time in over-all planning and supervision. William T. Carmody, (Concluded on Page 4, Column 4)

ASRE Meeting To Discuss Standards, Trends In Design

WASHINGTON, D. C.—The three-day 44th annual meeting of the American Society of Refrigerating Engineers is being held in the Hotel Statler here from Monday through Wednesday, Dec. 6-8.

A domestic refrigerator forum, the presentation of 13 technical papers, and a luncheon address by Earl O. Shreve, president of the U. S. Chamber of Commerce are feature attractions.

In addition, the society will elect and install new officers for 1949 and will vote on proposed standards for expansion valves and mechanical refrigeration installations on ship-board.

The social program, includes sight-seeing trips around Washington, an (Concluded on Back Page, Column 1)

Matthes Heads G-E Air Cooling Sales

BLOOMFIELD, N. J.—Louis H. Matthes has been appointed general sales manager of the General Electric Co.'s air conditioning department with headquarters here, according to Harold F. Smiddy, general manager.

As general sales manager, Matthes will be responsible for field sales activities, commercial engineering, national user sales, and for the activities of the customer sales divisions.

Matthes, who was born in Albuquerque, N. M., first joined the General Electric Co. at Schenectady, N. Y., as test engineer in 1921. In the spring of 1922, he was assigned to the industrial control division at Schenectady as a design engineer.

In 1945 Matthes was transferred to Dallas, Tex., as district manager of the industrial divisions. He served in that capacity until he joined the air conditioning department in October, 1947.



Louis H. Matthes

YOU CAN STILL BUY...

Christmas Gift Electric Appliances with a Small Down Payment

Wonderful Electrical Gifts for Every Member of the Family

Shopped for a Christmas Gift Idea?

There's always the perfect gift idea when you shop NES. That's why we've put together a list of 25 electrical gifts that are sure to please. And we've put them in two groups: "NO SPECIFIED DOWN PAYMENT" and "SMALL DOWN PAYMENT REQUIRED".

NO SPECIFIED DOWN PAYMENT

- ELECTRIC WATER HEATERS
- ELECTRIC RANGE FREEZERS
- ELECTRIC GARAGE DISPOSER UNITS
- ELECTRIC CLOTHES DRYERS
- ELECTRIC SPACE HEATERS
- ELECTRIC CLOCKS
- ELECTRIC HEATING PADS
- ELECTRIC RAZORS
- ELECTRIC BLANKETS and COMFORTERS
- ELECTRIC WAFFLE IRONS
- ELECTRIC PERCOLATORS
- ELECTRIC MIXERS

SMALL DOWN PAYMENT REQUIRED

- ELECTRIC RANGES
- ELECTRIC REFRIG'S and HOME FREEZERS
- ELECTRIC WASHERS
- ELECTRIC RADIOS
- ELECTRIC RADIO-PHONO COMBINATIONS
- ELECTRIC VACUUM CLEANERS
- ELECTRIC SEAM WASHERS
- ELECTRIC SEWING MACHINES
- ELECTRIC DRESSERS
- ELECTRIC RECORD PLAYERS
- ELECTRIC FLOOR and TABLE LAMPS
- ELECTRIC AIR CONDITIONERS (Unit)

Make this an Electrical Christmas!

NES
Nashville Electric Service

The above advertisement, reduced from three-quarter page size, appeared in Nashville newspapers two days in succession just prior to Thanksgiving. It was run by the local utility, the Nashville Electric Service, as a booster to Christmas appliance buying and to clarify public confusion over the application of credit restrictions to the various appliances. It might well be copied by other dealers.

Philco Acquires Net Assets of Electromaster

Agreement, Subject to OK, Would Make Electromaster A Division of Philco

PHILADELPHIA—Philco Corp. has entered into an agreement to acquire the net assets of Electromaster Inc., manufacturer of electric ranges, subject to approval of Electromaster stockholders at a meeting to be held early in January.

In the joint announcement of the purchase agreement made by William Balderston, president of Philco, and R. B. Marshall, president of Electromaster, it was stated that Electromaster will be operated by its present management as a division of Philco Corp., "and its output of electric ranges will be marketed for the time being under the Electromaster name."

The acquisition marks the first expansion of Philco into the electrical appliance field since it began to produce refrigerators. Philco also makes radios, radio-phonographs, and television sets.

Electromaster was established in 1929 and has been a producer of electric ranges since that time. Its plant facilities at Mt. Clemens, Mich., completed about two years ago, are said to be among the most modern in the industry.

Under the purchase agreement, Philco will tender—in exchange for plant, patents, and other assets of Electromaster—68,212½ shares of its authorized but unissued common stock, or one share of Philco for 8.796 shares of Electromaster, after giving effect to a declaration of a 7% stock dividend on Philco common stock payable Dec. 14 to holders of record Dec. 3.

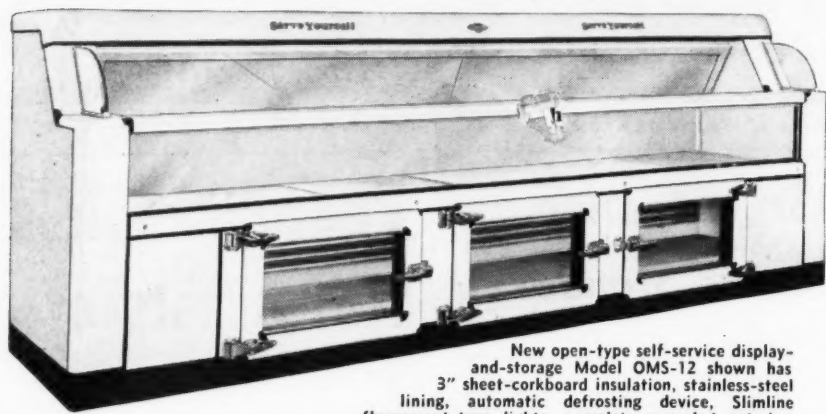
In announcing the stock dividend of 7% on the common shares of Philco, Balderston said that "in reviewing the year's operations, the board felt that recognition should be given in its dividend action to the high level of sales and the resultant earnings which were achieved in 1948."

"The decision to pay this year-end dividend in stock rather than in cash was prompted by a special set of circumstances requiring the conservation of cash to handle the substantial increase in the company's refrigeration and television business, and to provide for additional plant facilities for the production of television receivers."

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it has *everything*
that modern merchandising demands —



New open-type self-service display-and-storage Model OMS-12 shown has 3" sheet-corkboard insulation, stainless-steel lining, automatic defrosting device, Slimline fluorescent-type lights, porcelain-enameled exterior.

FORTIFIED throughout with sheet corkboard 3" thick . . . recognized universally as a superior insulating substance . . . the new Warren Model OMS is the ultimate today in a modern refrigerator.

It is today's sturdy, smart-looking, ultra-modern merchandiser for prepackaged meats and dairy products. Ask your dealer to show you this new unit. It is available in all popular and continuous lengths.

A note to dealers: we invite your inquiry about our franchise opportunities. Address Dept. 210 for information.



The WARREN COMPANY INCORPORATED
905 MEMORIAL DRIVE, S. E. ATLANTA 1, GEORGIA



J. A. STRACHAN

Strachan Elected Vice President of Airserco

PITTSBURGH—J. A. Strachan has been elected vice president of Airserco Mfg. Co. here, manufacturer of service tools, testing equipment, and accessory equipment for refrigeration work, it is announced by E. C. Williams, president of Airserco.

Strachan was formerly manager of the refrigeration division of The Weatherhead Co., and before that sales manager of the refrigeration division of Kerotest Mfg. Co., his experience in the refrigeration field extending over some 20 years.

General Air Conditioning Table-Top Model Bows In

LOS ANGELES—A table height, work-top refrigerator of more than 4 cu. ft. capacity is being manufactured here by the General Air Conditioning Corp.

Called the model GA-1004, the unit is constructed out of heavy gauge aluminum and weighs only 150 lbs. It measures 36 in. high, 27 in. wide, and 23 in. deep.

It is equipped with bar type metal shelves, electrically welded and heavily plated after fabrication. The freezer compartment contains two ice cube trays which can make a total of 40 cubes at one time. With the trays removed, the space can be used for the storage of meats and frozen foods. Extruded aluminum coils are featured in the evaporator which is U-shaped and located in the center of the refrigerator.

The unit is also equipped with a meat tray that doubles as a drip pan during defrosting.

A ½-hp. hermetically sealed, self-oiling Tecumseh unit provides the refrigeration. Using "Freon-12" as the refrigerant, this table-top refrigerator is equipped with a slanting static condenser.

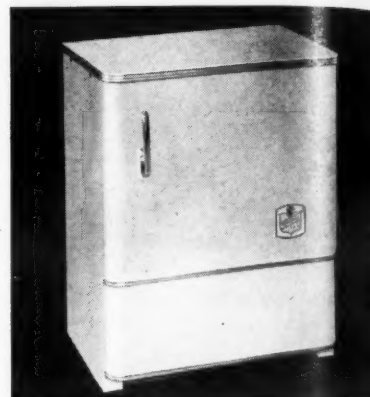
The refrigerator also has Fiberglass insulation and a large balloon type gasket around the lip of the door.

The work-top is said to resist acids, acid burns, scratching, alcohol, scalding liquids, and won't blister or burn.

For Small Kitchens



Model GA-1004



Same model with door closed.

Discounts for Employees Create 'Favored Class' NRDGA Claims

NEW YORK CITY—Attempts by certain manufacturers, particularly in the appliance field, to get "substantial discounts" for their employees at the retailer's expense were denounced in a recent bulletin issued by the National Retail Dry Goods Association.

The association asserted that the creation of specially favored classes, giving price advantages to some that are not given to others, is essentially unfair.

Such practices also set a precedent that might be followed by a large number of manufacturers and involve countless employees, it added.

NRDGA warned manufacturers, who when they fail to get such discounts from established retailers "seek to achieve the same net effect by entering the retail field," to be wary of this practice.

Gibson Remains Owner Of Apollo Sheet Rolling Mill In Phoenixville Sale

GREENVILLE, Mich. — Frank S. Gibson, Jr., chairman of the Phoenix Apollo Steel Co., of Apollo, Pa., has announced that the company, in selling its Phoenixville properties to Kaiser-Frazer Co., has retained full ownership of its sheet rolling mill, the Apollo Steel Co., and has made an agreement under which the Kaiser-Frazer Phoenixville plant will continue to supply steel bars to the Apollo plant.

Gibson made it clear that the Apollo Steel Co. will operate as an entirely separate company and its total sheet steel output will continue at the same level. Gibson said that its output may even show an increase.

The Apollo company, under the new agreement will receive from Kaiser-Frazer Phoenix Iron Works the same tonnage of steel bars it had been getting from that source.

Gibson, who is secretary-treasurer of the Gibson Refrigerator Co. here, stated that the Gibson company will get from Apollo Steel the same share of the Apollo company's output as it received before the Kaiser-Frazer deal.

The Gibson firm recently increased its holdings in the Apollo Steel Co. by purchase of the Standard Pressed Car's interest in the same.

To clarify the background of the Phoenix Apollo deal, Gibson recalled that originally a group of manufacturers formed the Phoenix Apollo Steel Co., bought the Apollo company rolling mill and then bought the Phoenix Iron Works as a source for steel bars.

Mart Exhibitor List Is Increased to 150

CHICAGO—The major appliance and radio exhibitor list for the January home furnishings show to be held in the American Furniture Mart here was boosted to 150 firms with the addition of six new tenants to the Mart, Col. Lawrence H. Whiting, Mart president, announced recently.

The six new arrivals are Thor Corp.; Kalamazoo Stove & Furnace Co.; Electromaster Inc.; Landers, Frary & Clark; One Minute Washer Co.; and the Holland Reiger division of the Apex Electrical Mfg. Co.

Kohnstamm, Hess Get New Posts with Jahco

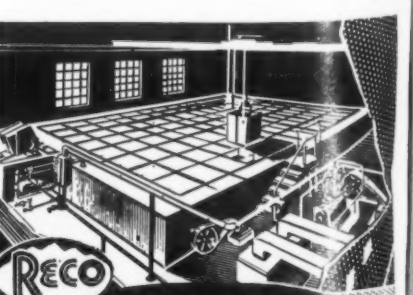
CLEVELAND — Jack & Heintz Precision Industries, Inc. announced recently that Frank R. Kohnstamm was appointed senior vice president and that Otto Theodore Hess, general counsel and secretary, was appointed assistant to the president.

Kohnstamm was elected vice president last June after having joined the company in October, 1947. Hess continues as secretary and general counsel.

Detroit ASRE, ASHVE Chapters To Meet Jointly December 13

DETROIT—A joint meeting of the local sections of the American Society of Refrigerating Engineers and the American Society of Heating and Ventilating Engineers will be held Monday evening, Dec. 13, at 8 p.m. at the Rackham bldg. here.

H. C. Hoffman, Carrier Corp.'s Detroit branch manager in charge of direct sales, will discuss a topic of interest to both groups—"Principles of Conduit Weathermaster Design and Application to the Terrace Plaza Hotel Building."



COMPLETE ICE PLANTS & ICE PLANT SUPPLIES
Diesel and Electric Plants, Agitators, Fillers, Dumpers, Air Agitation Systems, Pressure Vessels, etc.
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NATIONAL LOCK REFRIGERATOR HARDWARE

"THRU-THE-DOOR" LOCKING

• Commercial Refrigerator modernization is easy with "Thru-the-Door" Hardware. Ask us for application drawings. Standard items available for either plug type or full type door.

"EDGE-MOUNTED" HINGES

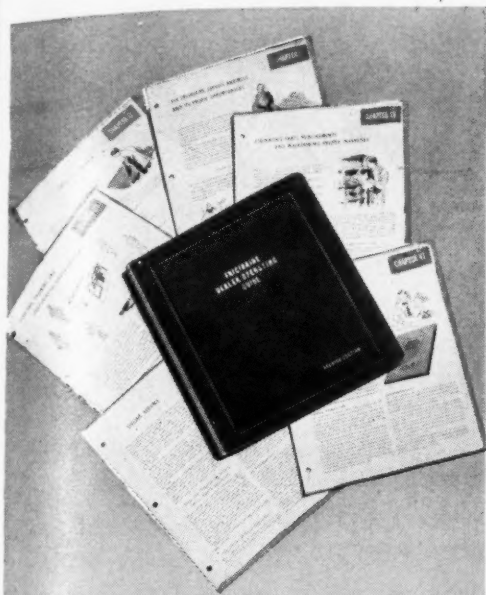
• The "Edge-Mounted" hinge is another answer to your modernization problem. Many years of field usage have proven its durability. Write for application drawings proving easy adaptation.

WRITE NOW FOR DESIGN PARTICULARS

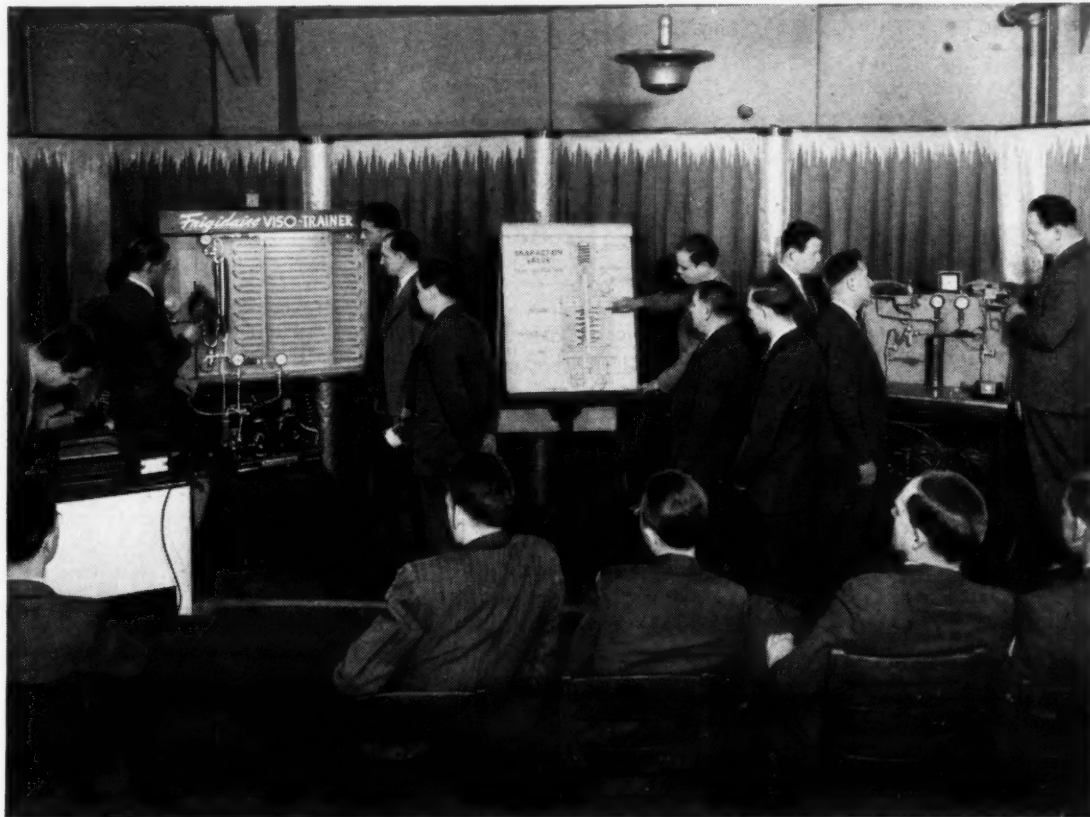
REFRIGERATOR
HARDWARE
DIVISION

NATIONAL LOCK COMPANY

ROCKFORD • ILLINOIS



The **Frigidaire Dealer Operating Guide** contains a large section devoted to service problems. Helpful, complete information is provided on such subjects as the hiring, training and compensating of service personnel. Detailed suggestions for efficient record-keeping, parts inventory and other paper work are made. Supplemental information keeps the guide up to date.



Learning By Seeing and Learning By Doing are important parts of the Frigidaire service training program. Students see problems worked out with such special aids as the Frigidaire Viso-Trainer.

Then they work out actual problems on actual equipment under the guidance of factory experts. Instruction covers customer relations as well as advanced service techniques.



Home Study Courses and Technical Publications help keep servicemen informed of new techniques. Study courses supplement regular service schools, cover everything from basic refrigeration theory to highly specialized service and repair work. Manuals, parts catalogs and reference guides are prepared by experts who understand the problems every dealer's servicemen face.

What Frigidaire Service Leadership Means To Frigidaire Dealers

One of the biggest assets an appliance or commercial refrigeration dealer can have is a good service reputation. It protects profits, helps build repeat business and attracts new customers. That's why Frigidaire supports its dealers with one of the most complete service programs in the industry. For example, the Frigidaire Service Parts Factory

is larger than many a large company's entire facilities. It maintains 80,000 original tools and dies; stocks over 14,000 different parts, all manufactured to the same rigid quality standards as those on new equipment.

In addition, Frigidaire maintains a large, highly skilled staff to develop new and better service

methods, prepare training materials and conduct training schools for dealers' servicemen.

This service leadership is profit insurance of a mighty practical kind. And it's only one of many ways in which Frigidaire leadership is helping build better business for all Frigidaire Appliance and Commercial Dealers.

Better Service Means Better Profits For Frigidaire Appliance And Commercial Dealers

You're twice as sure with two great names

FRIGIDAIRE made only by **GENERAL MOTORS**

Frigidaire Service Parts Factory assures dealers of an adequate supply of parts at all times. Precision manufacturing methods produce parts equal in quality to original equipment, make possible Frigidaire's special service parts Warranty.

80,000 Original Tools and Dies are kept available for instant use in manufacturing parts for older Frigidaire products. Use of these tools and dies produces parts that fit, perform and wear as well as original equipment.

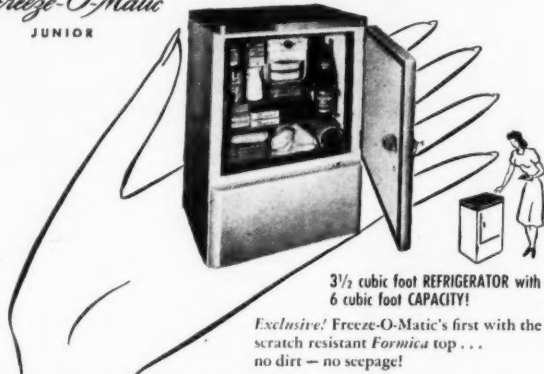
14,000 Genuine Frigidaire Service Parts — from tiny rivets to massive compressor components — are always kept in stock at the factory. Even parts for equipment 20 years or more old are quickly available in all parts of the country.

45 Distributing Points Across America maintain large stocks of Frigidaire Service Parts, can give quick service to Frigidaire Dealers everywhere. Dealers can rely on specially trained staffs to fill orders promptly and accurately.



EVERYBODY IS A PROSPECT...
America's BIGGEST LITTLE Refrigerator

Freeze-O-Matic
JUNIOR



Successful merchandising is the ability to adapt your product to multiple uses, new markets. Here, in the Freeze-O-Matic Junior, is the "little GIANT" with everybody a prospect!

Here's the ideal unit for modern apartments, kitchenettes, bungalows, dentists' and doctors' offices, laboratories, counter drug stores... and any place where space is limited. Just the thing, too, as that extra unit for basement, porch, home or office bar.

SOME EXCLUSIVE TERRITORIES STILL OPEN. WRITE, WIRE OR PHONE FOR FURTHER INFORMATION.



ACME-NATIONAL
REFRIGERATION COMPANY, INC.
634 DEAN STREET • ST. 5-3040 • BROOKLYN 17, N. Y.

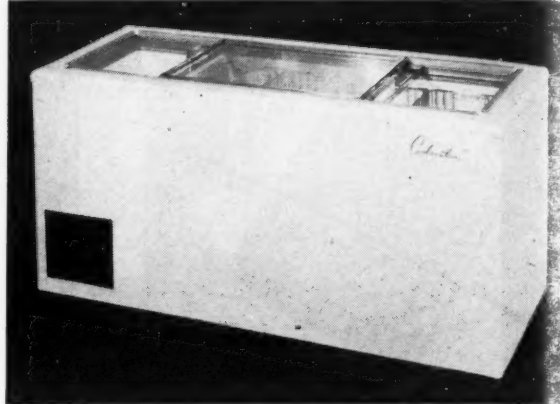
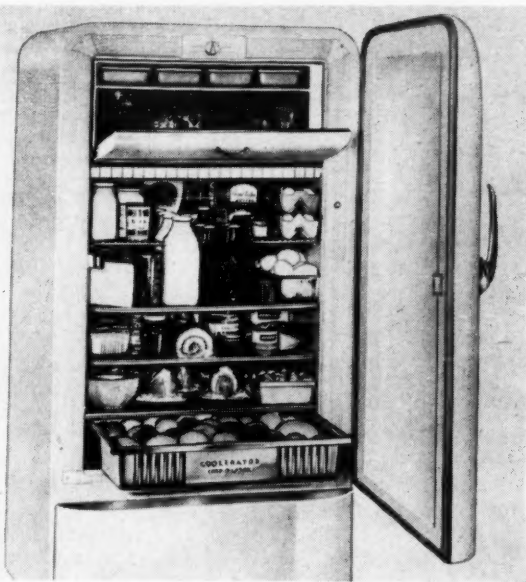
**Dept. Store Dollar
Volume Improves 6%**

WASHINGTON, D. C.—A 6% increase in dollar sales by retail stores during October, as compared with the same month last year, was noted recently by the U. S. Department of Commerce. Total sales reached \$11,580 million.

Durable goods stores reported total sales for the month at \$3,275 million. This compared with \$3,171 million in September and \$2,995 million in October, 1947.

After seasonal adjustments, monthly differences were slight.

Part of Coolerator Line for Coming Year



ABOVE: Model FG-161 commercial freezer with 16.1-cu. ft. capacity.

LEFT: Model 9 RD-7 Space-Saver Deluxe refrigerator with 8-cu. ft. capacity.

Home, Farm Freezer Sales Increase 31%

SEPTEMBER (34 Companies)

Sizes	Domestic (48 States and D. C.)	Canadian	Other Foreign	Total
1. 4.9 cu. ft. and under..	2,213	....	81	2,294
2. 5.0 to 6.9 cu. ft.....	8,526	....	120	8,646
3. 7.0 to 8.9 cu. ft.....	13,080	....	274	13,354
4. 9.0 to 10.9 cu. ft.....	4,020	....	6	4,026
5. 11.0 to 12.9 cu. ft.....	6,546	....	10	6,556
6. 13.0 to 16.9 cu. ft.....	5,007	....	11	5,018
7. 17.0 to 20.9 cu. ft.....	5,463	....	2	5,465
8. 21.0 to 29.9 cu. ft.....	202	....	....	202
9. 30.0 to 39.9 cu. ft.....	158	....	....	158
10. 40.0 to 49.9 cu. ft.....	3	....	....	3
11. 50.0 to 59.9 cu. ft.....	....	....	....	....
12. 60.0 cu. ft. and over..	11	....	....	11
Total	45,229	....	504	45,733

FIRST NINE MONTHS (34-36 Companies)

Sizes	Domestic (48 States and D. C.)	Canadian	Other Foreign	Total
1. 4.9 cu. ft. and under..	56,027	2	848	56,877
2. 5.0 to 6.9 cu. ft.....	57,818	....	761	58,579
3. 7.0 to 8.9 cu. ft.....	90,618	....	1,180	91,798
4. 9.0 to 10.9 cu. ft.....	32,083	....	114	32,197
5. 11.0 to 12.9 cu. ft.....	60,756	4	329	61,089
6. 13.0 to 16.9 cu. ft.....	26,368	....	79	26,447
7. 17.0 to 20.9 cu. ft.....	30,514	....	13	30,527
8. 21.0 to 29.9 cu. ft.....	2,041	....	3	2,044
9. 30.0 to 39.9 cu. ft.....	3,453	....	....	3,453
10. 40.0 to 49.9 cu. ft.....	31	....	....	31
11. 50.0 to 59.9 cu. ft.....	....	....	....	....
12. 60.0 cu. ft. and over..	90	....	....	90
Total	359,799	6	3,327	363,132

Participating companies: Ace Cabinet Corp.; August G. Barkow Mfg. Co.; Beatty Mfg. Co.; Ben-Hur Mfg. Co.; R. H. Bishop Co.; Brewer-Titchener Corp.; Carrier Corp.; Chapman Refrigerator Sales Co.; The Coolerator Co.; The Crosley Div., AVCO Mfg. Corp.; Deepfreeze Div., Motor Products Corp.; Frigidaire Div., General Motors Corp.; General Electric Co.; General Refrigerator Co.; Gibson Refrigerator Co.; Hotpoint, Inc.; International Harvester Co.; Master-freez Home Locker Mfg. Co.; The Maytag Co.; Midwest Industries, Inc.; Nash-Kelvinator Corp.; Norge Div., Borg-Warner Corp.; Oregon Refrigerator Co.; Portable Elevator Co.; Revco, Inc.; Sanitary Refrigerator Co.; Schaefer, Inc.; Seeger Refrigerator Co.; Emil Steinhurst & Sons, Inc.; Stoddard Mfg. Co.; Sub-Zero Freezer Co., Inc.; Victor Products Corp. (In 6-1-48); Whiting Corp. (In 3-1-48); Wilson Cabinet Co., Inc.; Ideal Cooler Co. (Out 7-1-48); Quillen Bros. Ref. Co. (Out 7-1-48); Refrigeration Corp. of American Div., Noma Electric Corp. (Out 4-1-48).

Sporlan Reorganizes --

(Concluded from Page 1, Column 3)
who has been with the company since its founding 15 years ago and for several years sales manager, has been named to this new position of controller and director of customer relations.

Sporlan's sales will be under the direction of Charles C. Grote, who becomes eastern sales manager with headquarters in Mt. Vernon, N. Y., and Merle G. Haynes, who takes the post as western sales manager with headquarters in St. Louis. Supervision of all sales, including export, will be handled by these two men working with the company's staff of 10 field sales engineers. Both men have been with the company a number of years, and both have had field sales and engineering experience.

To fill the vacancy on the west coast created by the promotion of Haynes, Sporlan has appointed W. H. Krack, who has 10 years experience in the refrigeration industry. Making his headquarters in Los Angeles, his territory will include California, Oregon, Washington, Arizona, Nevada, Idaho, Utah, and part of Montana.

Trane Income Is \$1,034,604

LA CROSSE, Wis.—A nine months financial report issued by the Trane Co. here recently revealed net income of \$1,034,604, or \$3.45 per share as compared with \$1,684,040, or \$5.61 per share last year. Net sales were \$15,487,238 as compared to \$15,516,470 last year.



W. T. CARMODY



M. G. HAYNES

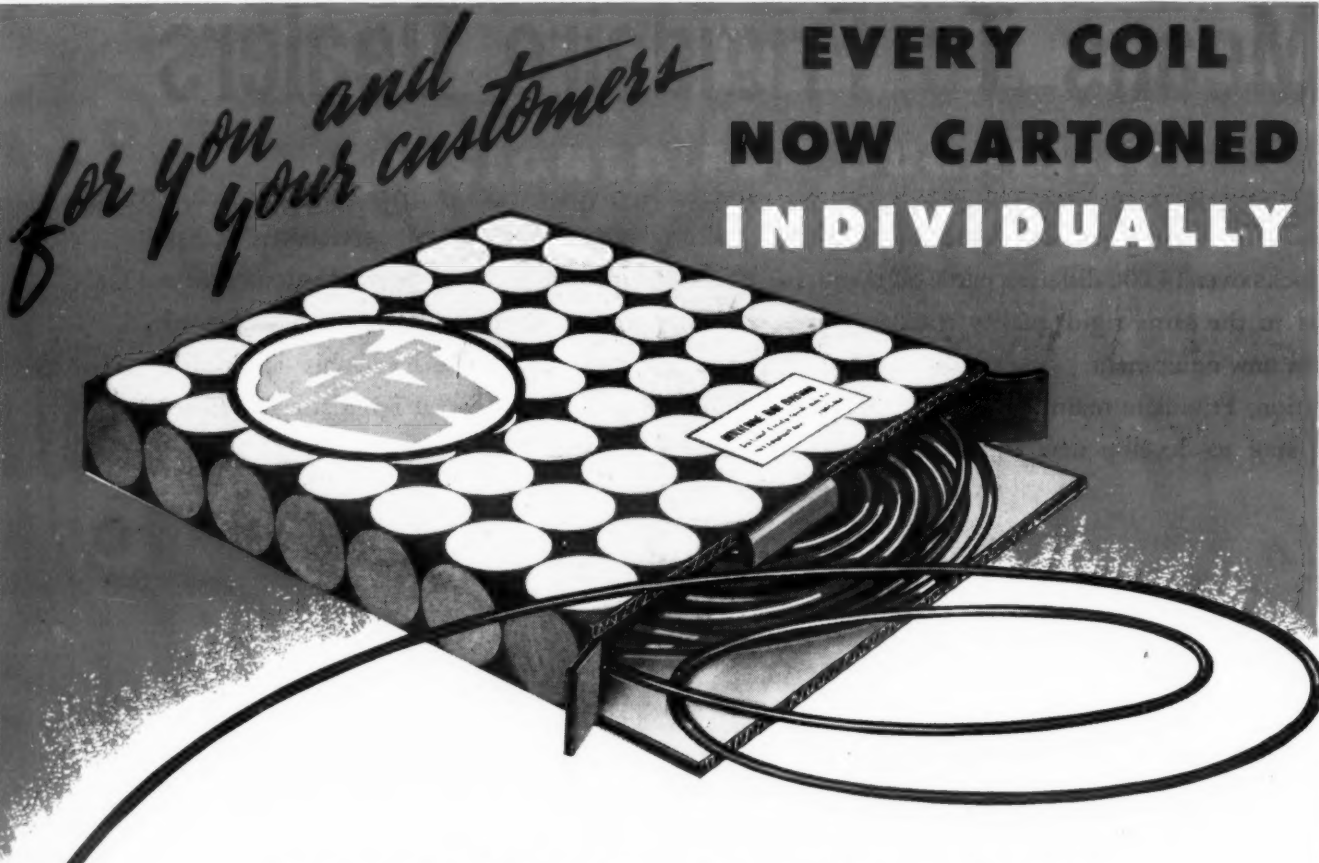


C. C. GROTE



W. H. KRACK

WILSON
REFRIGERATION, INC.
• FARM AND HOME FREEZERS
• REACH-IN REFRIGERATORS
• WALK-IN REFRIGERATORS
• FARM MILK COOLERS
DIVISION OF WILSON CABINET CO., INC.
SMYRNA • DELAWARE



WOLVERINE WATER TUBE
individually packaged in 60 ft. coils
WOLVERINE REFRIGERATION TUBE
individually packaged in 50 ft. coils

Packed individually in these blue and red packages,
Wolverine seamless, non-ferrous tube is - - -

- ★ Easy to BUY
- ★ Easy to HANDLE
- ★ Easy to INVENTORY
- ★ Easy to STOCK
- ★ Easy to RE-SHIP
- ★ Easy to USE
- ★ Easy to MERCHANDISE

Ask us for Bulletin A12.

Remember—there IS a difference in tubing—SPECIFY WOLVERINE

WOLVERINE TUBE DIVISION
CALUMET AND HECLA CONSOLIDATED COPPER COMPANY
INCORPORATED

MANUFACTURERS OF SEAMLESS NON-FERROUS TUBING

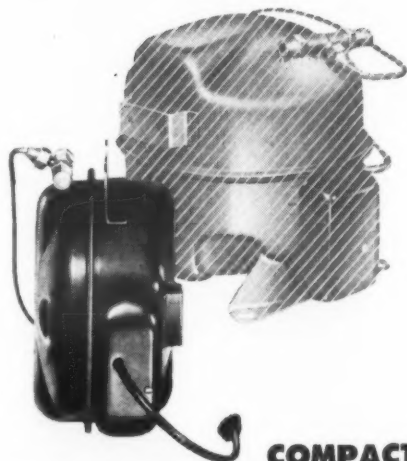
1411 CENTRAL AVENUE

DETROIT 9, MICHIGAN





It's the New Tecumseh Hermetic Motor Compressor



COMPACT! Just $9\frac{3}{4}$ " in diameter by $5\frac{17}{32}$ " thick! Compare its size to other Hermetics and you'll see why this new Tecumseh unit is a "natural" for your "limited space" applications.

Take a good look at this new Tecumseh single cylinder, 1/10th horsepower Hermetic. Check its over-all dimensions, its amazing new compactness of design. Consider its internal spring mountings that assure smooth, quiet, vibrationless operation. Then add positive forced feed lubrication, ample provisions for oil cooling, plus all the other outstanding engineering features that characterize the millions of Tecumseh units already in service. These are reasons enough, we believe you'll agree, why this latest Tecumseh Hermetic has been acclaimed a major contribution to the refrigeration industry.

Adaptable to apartment, midget and regular domestic refrigerators, water coolers, small beverage coolers and vendors, biological cabinets, and many other applications where limited space is a controlling factor.

TECUMSEH PRODUCTS COMPANY

Tecumseh, Michigan



Chieftain

WORLD'S LARGEST INDEPENDENT PRODUCER OF COMPRESSORS AND CONDENSING UNITS FOR THE

REFRIGERATION INDUSTRY

Pinnacle

Double Duty and Delicatessen
DISPLAY CASES



Quality Construction Throughout!

Exterior and interior of display compartment of heavy gauge steel, finished in two-coat, easy to clean, porcelain. Storage compartment lined with stainless steel. Easy (finger-tip) sliding doors. Under-shelf fluorescent lights.

A few exclusive Pinnacle territory Franchises are still available. Write or wire immediately for full information.

FREE FOLDERS
of complete line.

Pinnacle
EQUIPMENT CORPORATION
FLEETWOOD, PENNSYLVANIA

Export Dept.—39 Broadway, New York

Russ & Dorothy Gray Find a Restaurant Not Too Big, or A House Trailer Not Too Small for Room Air Conditioners

MIAMI, Fla.—Selling and installing room air conditioners in rather unusual locations is getting to be a habit with Russ and Dorothy Gray. Appointed distributor for Fedders room air conditioners in the south Florida territory last spring, they have already made two installations that have attracted more than local attention.

One was the use of six Fedders units to air condition a locally famous small restaurant known as the "Shrimp Place." The other was an installation in a trailer that is being used as a permanent home by a family of five.

Explaining the thinking behind the Shrimp Place installation, Dorothy Gray declared, "A large package unit would have deprived owners Ma & Pa Davis of a table which seats four. The Shrimp Place is a very busy place and for at least 200 nights a year they have a waiting line."

"Mr. and Mrs. Davis have but a couple of years left on a long-time lease, therefore, they did not wish to put in a remote system which consisted of a permanent air conditioning installation."

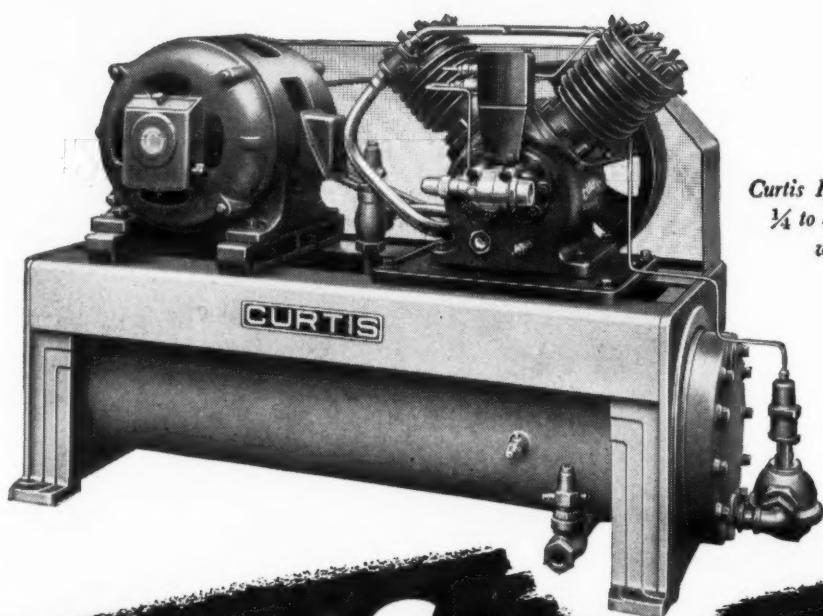
"They decided on the multiple units as they can be taken out and resold very easily at any time. Also, they use only the number needed" at any one time.

The Shrimp Place is a small establishment that seats a maximum of 90 persons at one time. Thus even the loss of a single table was a serious consideration in determining



Above: The Shrimp Place showing five of the six room air conditioners installed. Below left: The house trailer unit. Below right: The Gray's chrome plated show unit.

Built for High Efficiency • Low-cost Operation



Curtis Refrigeration Units,
1/4 to 30 H.P., air and
water cooled.

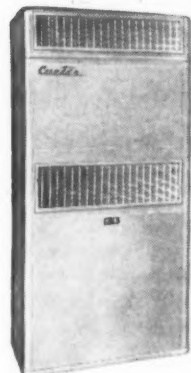
CURTIS

COMMERCIAL REFRIGERATION AND AIR CONDITIONING EQUIPMENT

Whatever the application in commercial refrigeration or air conditioning, the Curtis nameplate is your assurance of top quality construction, sound, proven engineering principles and low maintenance and operating expense. Just a few of the many features include:

- Timken Bearings
- A wide range of types and sizes
- Extra large condensers
- Positive-pressure lubrication
- Quiet operation
- Slow speeds — long life

Write for full information on the Curtis line of equipment for practically any refrigeration or air conditioning requirement.



Curtis Self-Contained Air
Conditioners—3, 5, 7½,
10 and 15 tons.

CURTIS REFRIGERATING MACHINE DIVISION

92 Years of
Precision Manufacturing

of Curtis Manufacturing Company

1912 Kienlen Avenue, St. Louis 20, Missouri AB-563

the type of air conditioning to be installed.

The air conditioned trailer is claimed to be the first such in the country. Air conditioning was just one of the super deluxe appointments that the Warren M. Tappan family have incorporated in their first permanent trailer home. (They have had five trailers since 1939 in which they have traveled through nearly every state in the union and in Mexico.)

The trailer also features a Servel gas refrigerator, bottled gas range,

and stainless steel kitchen tubs and sink.

Russ and Dorothy Gray have promoted Fedders air conditioning through newspaper advertising and through exhibition of a chrome-plated show unit at several occasions.

They displayed the unit in the "Fun In the Sun" show last July, set it up in Burdine's department store when that outlet became a Fedders dealer, and used it in the Pan American hotel show, Dorothy Gray said.

"It is not only attractive but a great aid in selling," she commented.

L & N Catalog Describes Latest D.A.T. Control

PHILADELPHIA—A newly-revised 36-page catalog issued by Leeds & Northrup, here, presents the latest developments in the company's duration-adjusting type of L & N electric control for regulating temperature of electric furnaces, salt pots, and certain fuel-fired furnaces.

Illustrated with numerous pictures of actual installations, this publication describes the unique D.A.T. method for controlling heat input by supplying electric power (or heat from combustion) in impulses of controlled duration.

It shows how this system provides the benefits of proportional control, with automatic droop correction.

Actual test curves illustrate how D.A.T., according to the manufacturers, limits the temperature swings of furnace heating elements, improving heater life and providing accurate as well as uniform control of furnace temperature at the designated point.

In addition to Micromax control instruments, the catalog also lists the Speedomax line of controllers, for applications where unusual speed and sensitivity are required.

Copies of this catalog—ND4A (2)—can be obtained from Leeds & Northrup Co., 4934 Stenton Ave., Philadelphia 44, Pa.

Heating Firm Opens In Buffalo

BUFFALO—A business name has been filed in the Erie County clerk's office for Capuson's Automatic Heating Co., 312 Woodlawn Ave., Buffalo, by John F. Capuson.

Fedders Names Downey To Regional Sales Post

BUFFALO—Norbert D. Downey has been appointed assistant sales manager in charge of the central states region of the heating and refrigeration division, Fedders-Quigan Corp., according to C. W. Little, sales manager.

Downey will cover the area west of Detroit to the Rocky Mountains and from Canada to the Gulf. Immediate plans call for the opening of a Chicago branch with additional sales engineering personnel to serve the central area.

Downey is widely known throughout the heating, air conditioning, and refrigeration industry where he has been active in sales and refrigeration distribution.

Gillette Assumes Control, Ownership of A.H.R., Inc.

ROCHESTER, N. Y.—Complete ownership and control of A. H. R., Inc., 196 Chestnut St., heating and air conditioning firm, has been assumed by William J. Gillette, local contractor.

The business was founded by Gillette in 1944 as W. J. Gillette Heating & Refrigeration, later operating under the name of Cooling & Heating Co., then incorporated on May 1, 1946 as A. H. R., the name under which it will continue to operate. The company handles the distribution and sales of Chrysler Airtemp products.

Gillette was formerly a staff member of the house heating division of the Rochester Gas & Electric Corp.



ENGINEERED
REFRIGERANT
CONTROLS

ALCO VALVE CO.
ST. LOUIS

Iowa Dealer's Auditorium, Trade Survey Build \$1,000,000 Per Year Sales Volume

DUBUQUE, Iowa.—Through the installation of an appliance auditorium in which to conduct demonstrations and a postwar survey of the trade area that showed what lines of merchandise local farmers desired, Stampfer's Farm and Home Store has built up a \$1,000,000 per year sales volume.

The auditorium, the brain-child of W. E. Strait, manager of the store, is located on the second floor, and occupies a space of 60 x 150 ft. Step-up platforms lead to a stage on which model kitchens are displayed. The entire room is equipped with fluorescent and spot lighting, comfortable chairs, and display facilities.

At the present time, there are two model kitchens displayed on the stage—the one on the left an all-steel model, and the other on the right having wooden cabinets. Between the two kitchens, plumbing and bathroom fixtures are shown. Home freezers and other appliances are placed along the walls of the auditorium.

In addition to serving the store as demonstration center for model kitchens and other appliances, it serves as a meeting place for women's clubs, social affairs, and business organizations. It also has been used to stage the annual Farm Show sponsored by Stampfer's each year.

GROUP DEMONSTRATIONS

"A member of the home extension staff of the Iowa State College at Ames, designed one of our kitchens," Strait said. "The convenience of the two kitchens, together with the fact that we are able to demonstrate our appliances to large groups of people at a time in our auditorium, has a decidedly important bearing on sales."

All cabinets in the model kitchens are fully stocked with dishes, pots, pans, spices, etc., and all appliances are in working order, so that serving luncheons to the various groups using the auditorium is a simple matter.

Women working in the model kitchens are fascinated by the handy time-saving kitchen arrangements and appliances. Many of them become so interested that they decide to install some of the labor-saving devices in their own kitchens, Strait said. This provides many extra sales for Stampfer's.

The auditorium, together with its display facilities, cost Stampfer's around \$4,000 to complete. As it can only be reached by first going through the first-floor appliance department, prospective customers are "exposed" to appliances in the main appliance showroom, and then in the auditorium. There they are sur-

rounded by wall displays of appliances and see the model kitchens on the stage.

"Every woman entering the hall likes to look over the appliance displays," Strait said. "And we get a great many prospects in this way, which has been evidenced by our sales increase."

SURVEY COVERS 400 FARMS

A trade area survey, made by Ray Torberg, manager of the appliance department, shortly after the end of the war, has also been the source of a great many sales and prospects.

For three and a half months, Torberg visited 400 farms surrounding Dubuque, talking to farmers and making notations of what hardware, appliances and farm machinery they were desirous of purchasing, or would need at some time in the near future.

At the time of his visit, Torberg

extended an invitation to each farmer to visit the Stampfer store when he was in the market for appliances.

After the survey was completed, Strait and Torberg discovered that between \$775,000 and \$1,000,000 worth of hardware items, appliances, and machinery was needed and would be purchased by the farmers at some time in the immediate future.

As a result of the survey, many of the farmers accepted Mr. Torberg's invitation and have since become permanent customers of the store. The store is of the opinion that the survey, by giving a true picture of the farmers' needs and helping the store to slant its merchandising lines in the right direction, has been responsible for winning the huge volume of farm trade the store now enjoys.

Bi-State Distributes Bendix

SOUTH BEND, Ind.—Appointment of Bi-State Distributing Co. as distributor in the Des Moines territory for Bendix Home Appliances, Inc., was announced by Lynn Eaton, director of districts.

Frozen Rabbit Plant To Boost Output as Does Put Out Litters of 10

AURORA, Neb.—A sharp freezer and a cold storage compartment are the major equipment in the Aurora Frozen Rabbit plant, a new industry here, which is processing 500 to 600 rabbits a week and expects to increase the production to 1,000.

Owners are Dr. R. L. Hanson and John Crom, who get their supply from about 75 breeding hutchers being operated by various Aurora residents.

The rabbits are killed at the plant, butchered, quick-frozen, and packaged and then held in cold storage for the wholesale and retail trade.

New Zealand Whites are the favorite species. Does produce litters of six to 10 or more in 30 days after breeding, while in 60 days after birth the litter is ready for butchering.

The two month old rabbits weigh

up to four and five pounds, dressing down to about two to two and one-half pounds. Meat is all white, tastes very much like chicken white meat, and is less expensive than other meats. In October the plant was selling the cut up and packaged meat at 55 cents a lb. retail.

Floyd Carnes, who takes care of butchering and freezing, pointed out that feed costs growers about one cent daily per animal, and the diet consists mainly of prepared pellets, hay, and oats. The rabbits are easy to raise and the pelts are turned at a profit.

Malsed Is Regional Manager For Admiral Corp. Products

CHICAGO — George Malsed has been appointed regional sales manager for Admiral Corp. appliances and radios in Oklahoma City and the states of Texas and Louisiana.

Malsed, who will headquarter in Dallas, Texas, prior to joining Admiral Corp. last month was manager of a distributor firm in Cincinnati.

Deepfreeze

DIVISION, MOTOR PRODUCTS CORPORATION

... does it again!

Two more new Deepfreeze home freezers with larger capacity at lower cost!

They're already rolling off the assembly line. Ready for you to start taking orders now—the new De Luxe Model C-6 and the new Model B-6 Deepfreeze home freezers—the greatest six cubic foot values ever offered in the home freezer field.

Consider the capacity—six full cubic feet. Compare the price—only \$239.95 for the new Model B-6. And study the features—the new De Luxe Model C-6 has everything, including deluxe equipment and low price, too—only \$269.95.



- Every inch 100% usable
- Holds more than 210 pounds assorted foods
- Automatic temperature control
- Counterbalanced lid
- Tumbler-type lock
- Interior light
- "Kicker" space at base of cabinet
- Three metal storage baskets and metal storage dividers
- One-piece all-steel cabinet
- Four inches of insulation
- Plus-power unit with 5-year warranty
- 5-year food protection plan

A complete line—the fastest-selling line—and, above all, the line that bears the industry's best-known name—that's what you get as a Deepfreeze home freezer dealer. For full facts about our money-making proposition to dealers, see your Deepfreeze home freezer distributor, or write us direct:

Deepfreeze Division, Dept. AC-128
Motor Products Corporation
North Chicago, Illinois

New De Luxe Model C-6, six cubic feet, \$269.95 delivered and installed. Other models available in 10 and 17½ cubic foot sizes.



New Model B-6, six cubic foot capacity, but without light, baskets, or lock, \$239.95.

There's only *One!*

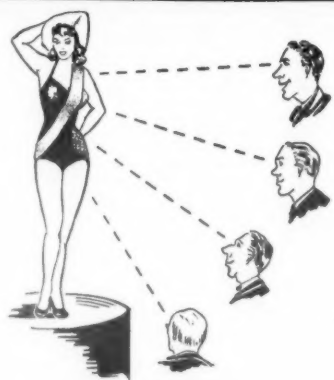
REMEMBER:

There are many makes of home freezers but only one can be called the Deepfreeze home freezer

Deepfreeze

HOME FREEZER

Visit our exhibit in Rooms 1447-48, The Merchandise Mart, Chicago, during the Chicago Home Furnishings Market, January 3-15, 1949, and during the National Housewares and Major Appliances Show, January 13-20, 1949.



A Good Figure
ATTRACTS
Attention

HERE'S ANOTHER
GOOD FIGURE!

THAWZONE
PATENTED
PIONEER FLUID DEHYDRANT

COSTS
ONLY **8¢** PER
POUND OF
REFRIGERANT

Figure based on pint quantities. Only slightly higher for smaller quantities.

HIGHSEIDE CHEMICALS CO.
195 VERONA AVE. NEWARK 4, N. J.

PERSONALIZED SERVICE

CHASE

CONVENIENT ONE-STOP SERVICE

CHICAGO'S OLDEST SUPPLY HOUSE

REFRIGERATION SUPPLY CO.

546-48 W. 119th STREET CHICAGO 28, ILL.

Manufacturers of Coolers & Filters for over 40 Years

CAFETERIA WATER COOLERS

Stainless steel. Special cafeteria design. High capacity, super storage. Shelves, glass-fillers and or bubblers as required.

Filtrine
HIGH EFFICIENCY

*Costs no more
Gives much more*

Service Satisfaction Dollar value

INDUSTRIAL PROCESS COOLERS

Temperatures to 34°—sustained as set. Special features for bakery, bottling, other processes. Rugged construction.

COOL, CLEAR, DECHLORINATED WATER WITH

FILTRINE FILTER-DECHLORINATORS

Eliminate tastes, odors, foreign particles. Promote cooler satisfaction — dealer sales.

A Few Choice Areas Open for Factory Representatives

FILTRINE MANUFACTURING CO.

53 LEXINGTON AVE., BROOKLYN 5, N.Y.

Too Cold for Mice

Carefully Controlled Low-Temperature Rooms Store 3,750 Tons of Kraft Cheese

LOWVILLE, N. Y.—Refrigerated cheese is big business in northern New York state. The largest American cheese cold storage facility in the United States operated by the Kraft Foods Co., is located here in Lowville.

In this plant, is one of the world's largest collections of cheese under one roof—some 7,500,000 lbs. of it, varying in form from ½ lb. bricks of limburger to 500-lb. cartwheels of cheddar made up for the chain store trade. The retail sales value of the total is estimated at \$3,500,000.

For the most part, the cheese represents the spring and summer—flush season—production of northern New York farms and factories. Upon curing in the cool, humid vaults, some of which are subterranean, the cheese will move out to Kraft customers throughout the country.

In the half dozen or more vaults at Lowville, cooled automatically to just right temperature by Carrier refrigerators and humidifiers, cheeses are stacked in racks from floor to ceiling. The temperature and degree of humidity may vary from room to room, depending upon the type of cheese. Temperatures maintained are a trade secret.

Maintained in connection with the cold storage facility are completely equipped laboratories in which a sample of every vat of cheese produced by every factory is tested for weight, purity, and moisture.

There is also an elaborate cataloging system, which enables plant officials to locate the stored production of any given factory for any given day.

Though limburger, made near Rome and Redwood, and wash curd varieties are part of the vast amount of cheese in storage at Lowville, the bulk of it is cheddar, the North Country's specialty.

A good share of the cheddar is Coon cheese, the high quality of which has made it a favorite with epicures the world over.

Except for a comparatively negligible amount of western cheese shipped in to cure, what is now in storage at Lowville came from some 40 factories situated between the Mohawk Valley and the Canadian border. They range from old fashioned "crossroads" factory to the modern "bush-button" plants.

The cold storage unit is an outgrowth of the B. B. Miller & Son and R. J. Richardson & Co. operation which was started in 1900.

National Gypsum Buffalo Office Is Reorganized

BUFFALO—Dean D. Crandell, National Gypsum Co.'s vice president in charge of dealer sales, has announced the reassignment of four sales executives in the Buffalo office.

These changes, Crandell stated, mark the completion of "the broadening of the sales division to keep pace with the company's expanded productive capacity."

Ernest A. Hekking, has been named to head a newly created sales promotion and correspondence department while his former duties as manager of paint sales will be assumed by C. Gustavus, manager of gypsum wallboard sales.

Joe L. Phillips, of the insulation sales department, has been designated to handle rock wool sales. David N. Scott, formerly head of the sales correspondence department, will assist him.

George-Ann Co. Names Wright Distributor In Northeastern States

YOUNGSTOWN, Ohio—E. S. "Ed" Wright, head of Refrigeration Contractors, Inc. here, and for the past



E. S. "Ed" Wright

year president of the National Association of Refrigeration Contractors, has been appointed regional distributor for the George-Ann Co. line of "warm room" frozen food lockers, announces G. R. Overton, president.

Wright's territory will cover the northeastern section of the U. S., consisting of all states east of the Mississippi and north of the Ohio and Potomac rivers, Overton said. Headquarters of the George-Ann Co. are located in Seattle, Wash.

New England Harvester Dealers Sponsor 15-Minute Quiz Show.

BOSTON—International Harvester Co. refrigeration dealers are sponsoring a twice-weekly quarter hour quiz show, "Happy Harvest," on WNAC Boston, key station of the Yankee network, from 12:45 to 1 p.m. with Ken Rapiett as harvester-of-ceremonies every Tuesday and Thursday.

A harvest of valuable prizes will be given contestants who participate and listeners at home who send in good questions. Show will originate from dealers' stores, mainly, Moller's in Cambridge, and Electric Appliance in Boston.

Alvin Zeisser, president of Equipment Distributors, Inc., New England, stated that this program will be expanded to more days and more markets.

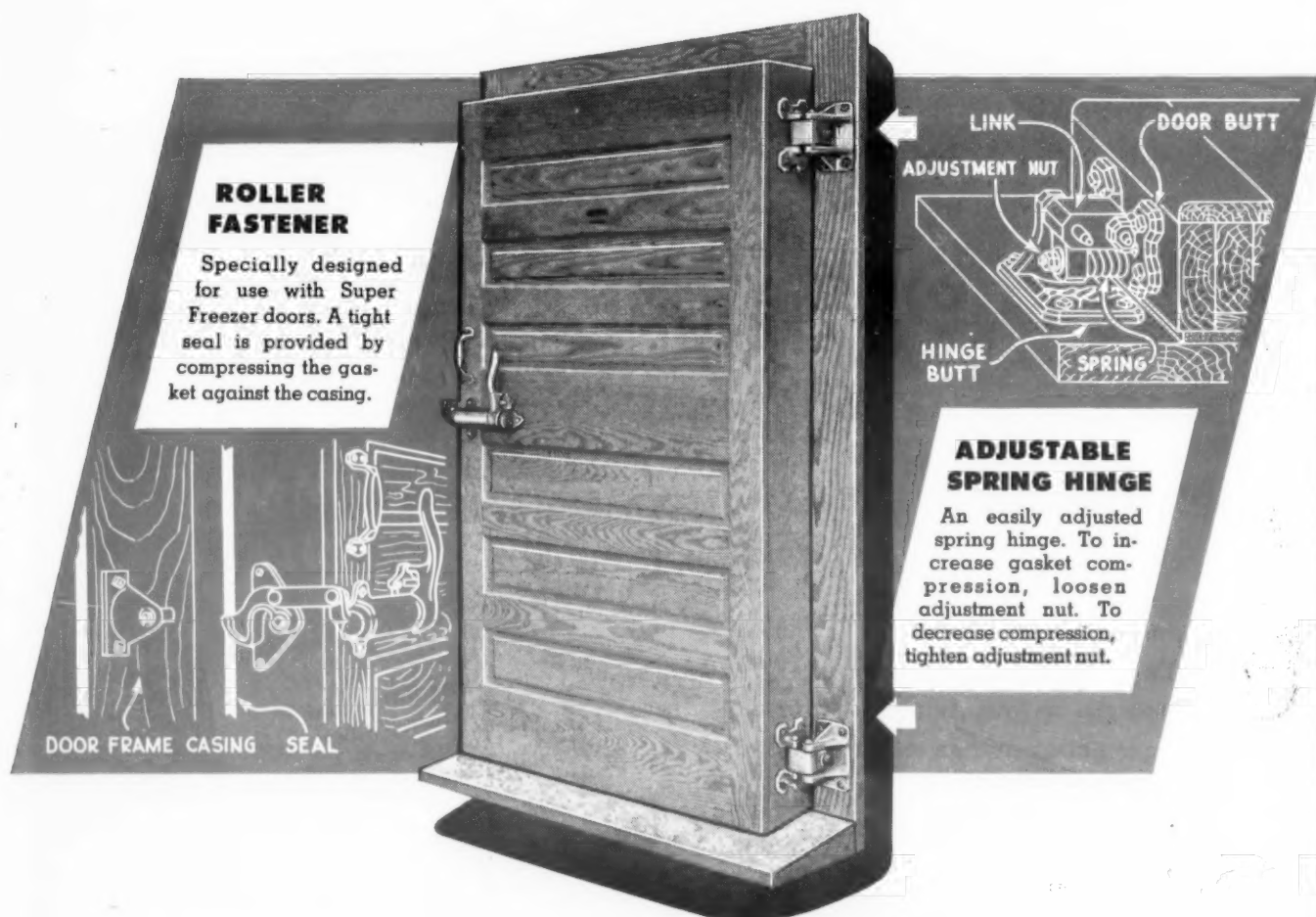
Scovill's Refrigeration Moves

ST. LOUIS—Scovill's Refrigeration Sales Co., distributor for Ace Cabinet Corp. in Missouri and Arkansas, has moved from its former location at 2208 S. Jefferson here to 2924 Oliver St., announces Walter D. Scovill.

The DOOR that helped make quick freezing possible

... JAMISON-BUILT Super Freezer

This Super Freezer Cold Storage Door is of the Stevenson overlap type for service at sub-freezing and sharp freezing temperatures. It is far superior for ice cream hardening rooms, frozen food storage, low-temperature test rooms, and similar applications. Hardware of extraordinary strength and unusual design is used on these doors.



Standard models of this Jamison-built Super Freezer Door are available in a wide range of sizes. Should you require special types or sizes, we are equipped to build them to any specification. Write for the address of our nearest branch office or send for complete catalog to Jamison Cold Storage Door Co., Hagerstown, Maryland.



The Oldest and Largest Builder of Cold Storage Doors in the World.

For
Maximum
Efficiency
Specify

STANGARD

Prime Surface Cold Plates

STANGARD plates are made for various applications, in any size, shape or form, including stainless steel—

PROMPT attention is given to new orders, with delivery schedules assured—

FOR DETAILS WRITE

STANGARD

REFRIGERATION CORPORATION OF AMERICA
NEWARK 5, NEW JERSEY - A DIVISION OF NOMA ELECTRIC CORP.

Doubled Electrified Farm Population Spurs Neb. Appliance Firms to All-Out Promotion

LINCOLN, Neb.—Faced with the happy prospect of soon having the number of electrified farms in the state doubled, Nebraska major appliance distributors and dealers have launched an "all-out" promotion to acquaint the farm family with the multitude of uses to which they can put their newly-acquired electricity.

The promotion is based on the rapid expansion of lines by 34 rural public power districts and membership associations plus the electrical research and experimentation carried on at the University of Nebraska's college of agriculture.

Up to early fall, Nebraska REA projects had been allocated \$50,394,263 of which \$30,088,985 already had been advanced. Allocated funds will bring the total of constructed lines to 36,282 miles. The present 42,385 customers are being served by 19,285 miles of lines.

The 36,282 miles will serve an estimated 74,095 customers. It is estimated that 93,000 Nebraska farms eventually will be served by rural electrification projects when the proposed construction program is completed.

Nebraska dealers foresee that in time each of these 93,000 farm homes will invest an average of \$1,200 in electrical appliances.

Twenty-eight Lincoln appliance dealers "set the ball a-rolling" in mid-November with advertisements and educational copy in a special farm electrification newspaper section, featuring the lightening of farm tasks through use of electrical appliances, food economy through use of the refrigerator and home freezers, and the Christmas gift angle.

COUNTY SHOWS PLANNED

Roy L. DeRose, agricultural engineer at the university, reported that a number of electrical equipment shows for rural people will be held in the state in January, February, and March.

While definite dates have not yet been set, they are scheduled to be held in the counties of Box Butte, Scotts Bluff, Perkins, York, Thayer, Phelps, Kearney, Fillmore, Lancaster, Pawnee, Dodge, Knox, Valley, Dawson, and Brown.

They will be sponsored by local chambers of commerce with the assistance of the county agricultural agent, the power supplier, and the local appliance dealers who will show all the latest electrical home and farm equipment which will be demonstrated for both the farm and town folks.

Part of the one-day meetings will be devoted to educational information through demonstrations, discussion and movies. Use of home appliances will be demonstrated by a home economist and the use of other farm electrical equipment will be shown by an extension engineer from the college of agriculture.

Planned for special discussion in 1949 is electrical motors and their use on the farm, with demonstrations of converting small equipment to motor operation.

The college of agriculture is preparing instructive booklets and pamphlets to be distributed to farm-

ers through the Extension Service. A 25-page booklet entitled "Suggestions For Preparing To Use Electricity On Your Farms," already has been available.

Over 100 electrical appliances and pieces of equipment are listed with the size of motor required, with demand in watts and the estimated energy consumption.

Other pamphlets covering safety factors, wiring, cost of operation, and home freezing, will be distributed.

Research at the university also has determined that running water is first on the list of wants of farm families when they get electricity. Refrigerators are second, then lights and radio.

The running water includes both hot and cold, involving installation of electric pump, storage, and hot water heater.

Other items high on the list, and

in about the following order, are washing machines, electric milkers, modern reading and study lamps including fluorescent equipment, lights in farm buildings other than the house, electric stove, vacuum cleaner, ironer, clothes dryer, electric roaster, electric blanket, home freezer, electrically operated and controlled stoker furnace, and small appliances, stock tank heater, milk cooler, sewing machine, feed grinder and electric welder.

The university has suggested to farm families that they spend some winter evening with each member of the family making out a list of electrical equipment he or she would like most to have.

A list has been printed by the university, with members of the family urged to check the items already installed, then each member checking the five he or she would like most to have next.

The separate lists can then be consolidated into one set of five electrical wants for the family, with all members present for the big decision.

Suggested list from which to choose:

Basement—Air conditioning, freezing and storage cabinet, furnace stoker, lights, oil burner, washing machine, water heater, water system.

Bath Room—Curling iron, hair dryer, lights, razor, room heater, sun lamp, vibrator.

Bedrooms—Air conditioning, blanket, clock, curling iron, fan, hair dryer, heat lamp, heating pad, lights, radio, sewing machine, vacuum cleaner.

24 ITEMS FOR KITCHEN

Dining Room—Casserole, chafing dish, clock, fan, lights, radio, sandwich grill, toaster, vacuum cleaner, waffle iron.

Hallways—Lights, vacuum cleaner.

Kitchen—Casserole, chafing dish, churn, clock, coffee maker, corn popper, cream separator, dishwasher, egg poacher, percolator, radio, range, refrigerator, roaster, room cooler, sandwich grill, toaster, waffle iron, fan, food chopper, mixer, lights, zero storage cabinet, milk pasteurizer.

Living Room—Air conditioning, clock, fan, lights, radio, room cooler, vacuum cleaner.

Utility Room—Cream separator, egg candler, fan, hot plate, iron, ironing machine, lights, radio, sausage grinder, washing machine, water heater.

Barn—Elevator, ensilage cutter, fan, feed grinder, feed mixer, fly electrocutor, hay hoist, lights, milking machine, paint sprayer, sheep shears, tank heater.

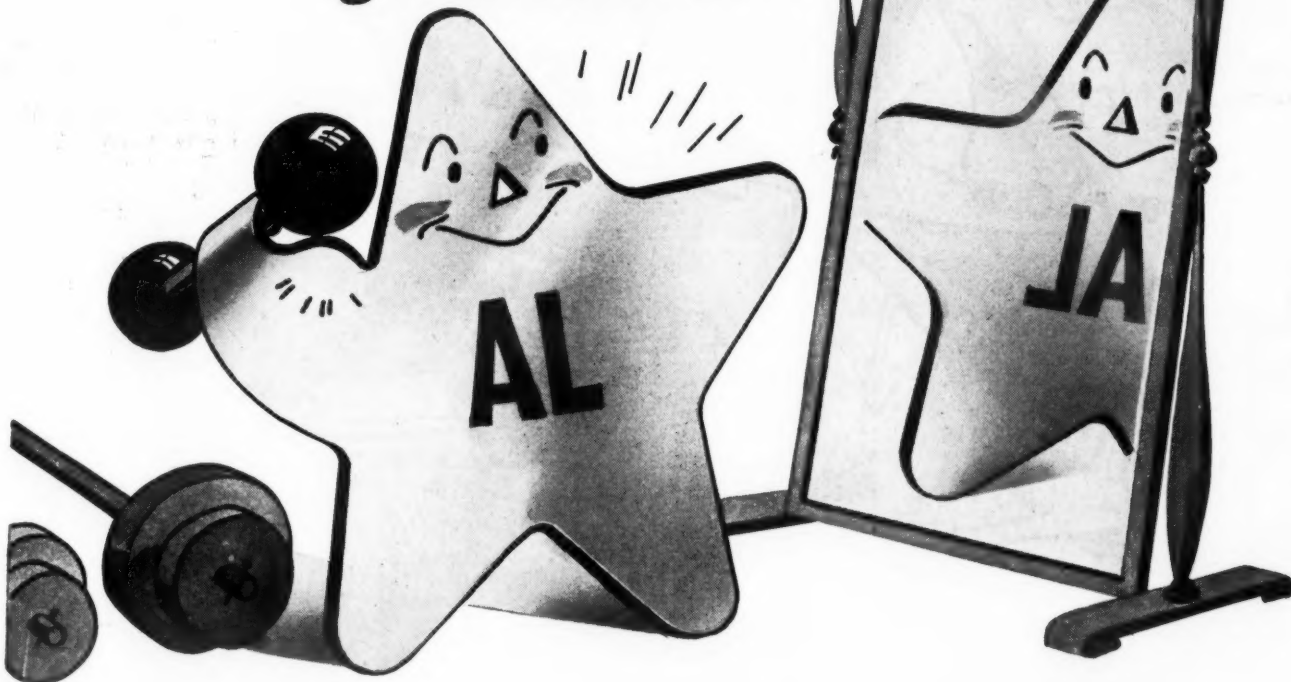
Dairy Barn—Bottling and capping machine, grain elevator, bottle washer, clippers, sterilizer, ensilage cutter, ventilating fans, feed grinder, feed mixer, fly electrocutor, germicidal lamp, hay hoist, heat lamp, immersion heater, lights, milking machine, milk cooler refrigeration, tank warmer, water heater.

Granary and Crib—Burglar alarm, corn sheller, fanning mill, feed grinder, feed mixer, grain elevator, grain grader and cleaner, lights.

Poultry and Brooder House—Brooder, germicidal lamps, lights, water warmer, sun lamps.

Shop—Battery charger, circular saw, drill press, emery wheel, fan, forge blower, grindstone, jig saw, lathe, lights, soldering iron, welder.

**Lasting strength
and a lifetime of
good looks...**



That's why to specify ALLEGHENY METAL

ALL THE LEADING FABRICATORS USE ALLEGHENY METAL

... every type of equipment you may need is available in this lustrous, lifetime-lasting stainless steel. Full information, prices, etc. are yours for the asking—either from the fabricator, or write us direct.

ADDRESS DEPT. AC-70

Everything that you want *most*, you get in equipment made of the time-tested stainless steel, Allegheny Metal. Stainless steel combines corrosion-resistance, great strength and hard-surfaced, long-wearing qualities to a degree actually unequalled by *any* other metal. That means it not only looks better and retains its bright beauty longer, but also cleans easier and reduces your maintenance and depreciation costs to a whisper.

Yes, Allegheny Metal equipment gives you maximum service life and stamina—it protects the purity and quality of products—and best of all, it saves you money in the long run. • Next time you buy equipment, be sure it's built of Allegheny Metal, the pioneer stainless steel—it *pays!*

**ALLEGHENY
ALUDLUM**
STEEL CORPORATION
Pittsburgh, Pa.

*Nation's Leading Producer
of Stainless Steels
in All Forms*



ALLEGHENY METAL is stocked by all
Joseph T. Ryerson & Son, Inc. warehouses



The McCary Signal Light

Prevents Refrigeration Losses
Needs No Servicing
Absolutely Foolproof

Ideal for use on walk-ins, reach-ins, display cases, ice cream cabinets, soda fountains, home freezers, floral boxes, refrigerated trucks, etc. Adjustable from -10° to +60° F.

Contact your local wholesaler

MCCARY MANUFACTURING CO.
2823 Mobile Street El Paso, Texas

Remington Corp. Elects
Stidfole Vice President,
Two Others Join Firm

CORTLAND, N. Y.—Fred Stidfole has been elected vice president of Remington Corp., manufacturer of packaged air conditioning equipment, Herbert L. Laube, president, has announced.

Prior to joining Remington as plant manager, upon its acquisition of the Cortland plant early in 1946, Stidfole spent 12 years with Carrier Corp., holding the position of assistant production manager during the war.

Other personnel additions announced by Laube include the appointment as design engineer of Leonard Clark, who, for the previous eight years, was an executive engineer with the Ozalid Div. of General Aniline & Film Corp., Johnson City, N. Y.; and of Howard Peters as assistant sales manager.

A native of Ohio, Peters resigned recently as sales manager of Orton Heating Co. of Akron, Ohio.

O'Keefe Distributing Incorporates

CARRIERS MILLS, Ill.—Incorporation of the O'Keefe Distributing Co. here, distributor of appliances and radios, as O'Keefe Distributing Co., Inc., has been announced by Clyde O'Keefe, president.

Completely 'Mechanized' Self-Service Meat
Dept. 'Pays Off' In Small Eastern Town



This four-tier stainless steel cart is used by girl in uniform to fill the Hill self-serve meat cases.

SANFORD, Maine — That self-service meats will work out just as well in the small town supermarket as in the city is being amply demonstrated at the First National Store here. First National has set up a completely "mechanized" self-serve meat production system which brought a healthy increase in meat sales.

The store, newest supermarket in the York county area of southern Maine, has installed 80 lineal feet of Hill self-serve, open, refrigerated cases, divided into permanent sections for smoked meats and poultry, roasts, steaks, chops, luncheon meats, delicatessen products and standard meats.

Each case is serviced by four-tier stainless steel rolling carts from the meat cutting department in the rear. One white-uniformed girl has charge

of stocking the cases on a requisition basis.

Meat preparation is handled by a crew of two butchers and four packaging girls. The meat room is divided into two sections, butchers on the inner side, and the packaging girls situated along a stainless steel counter running the length of the room.

Meats as received go into a huge walk-in cooler in the center, from which they move on overhead conveyor rails to the cutting blocks. Each butcher cuts from a list provided by the case girl, showing how many cuts of particular meat are required hour by hour through selling days.

After cutting, the meat moves in stainless steel trays to the packaging line, accompanied by the cutting ticket which shows which meats are

Conveyor Supplies Packaging Stations



Electric conveyor brings cut meat from butchers to the stations where girls weigh and package it.

to be given priority in packaging according to the need.

Each girl's station is equipped with a scale, and nine flat plywood trays of LSAT cellophane ranging from 8 in. by 8 in. to 18 in. by 23 in., the latter stocked in bins beneath the stainless steel work surface.

All of the wrapping material is kept refrigerated in the cooler until used, since it handles better, makes a neater seal and is less likely to discolor, according to Lee Schory, manager.

Each girl does her own weighing, pricing and sealing, using a standard hand sealer. For better appearance and less discoloration, all meat cuts are packaged in scoop type cardboard trays with cellophane drawn tightly over the top and label inside.

The depth of the carton prevents the meat from coming in direct contact with the cellophane for the most part. Customers have voiced their approval of the carton for easier handling.

Back of the stainless steel work surface is an electric conveyor, 25 ft. long, which has eliminated the necessity of packaging girls walking

to the front with finished packages.

The conveyor, consisting of a metal belt of square plates, moves slowly along the work surface, controlled by a switch at the head wrapper's station, and deposits meats fed to it by each wrapping girl into a stainless steel tray. These trays go on the rolling unit described above for servicing the open refrigerated cases.

Sanford residents, country dwellers, and farmers, have reacted excellently to self-service methods, according to Schory, with little or no tendency toward asking for "special cut service," although this is offered.

Thermometers along the Hill cases give proof that the meat is kept properly refrigerated, and the store welcomes inspection of its assembly line meat production system.

One of the chief advantages of the new system is the fact that more expensive cuts of meat, such as center ham slices, steak, Canadian bacon, chicken breasts, sell much more rapidly at a per package price.

Thus, self-serve meats on a small, but efficient scale, have "paid off" in this Maine mill town.

Mid-Atlantic Appointed
To Distribute Coolerator
In Baltimore Territory

DULUTH, Minn. — Mid-Atlantic Appliances, current distributor for Coolerator Appliances in Washington, D. C., will also represent Coolerator in the Baltimore territory, replacing David Kaufmann's Sons, it was announced recently by William C. Conley Jr., Coolerator sales manager.

According to H. P. Brightman, general sales manager, Mid-Atlantic Appliances have a branch office in Baltimore at 2501 Frederick Ave. Brightman will direct sales of Coolerator products in Maryland, Delaware and northern Virginia in addition to the present Washington territory. Paul Eisenberg is the branch manager for Baltimore.

Mid-Atlantic is equipped to provide a complete merchandising and service program for all Coolerator dealers in the Baltimore and Delaware area, Conley stated.

Service manager for both Baltimore and Washington offices is James H. Simpson. Service for the Baltimore metropolitan area will be handled through Reliable Service Co., located at 822 Park Ave. in Baltimore.

G-E Offers Identification
Sign for Dealer Displays

BRIDGEPORT, Conn. — A new edelight identification sign designed for counter and window display is now available to General Electric retailers, states George B. Park, advertising manager of the Appliance & Merchandise department. The etched glass sign stands 10½ in. high and is set in an all-metal base 12 in. long and 3 in. wide. The word "Appliances" is featured in white scroll letters beneath an orange monogram. Etched in white on the bottom blue stripe is the wording "Appliances Most Women Want Most."

The sign is lighted by two 25-watt lamps for economical night identification. Cost delivered is \$5.50.

Former Bendix Officer Takes
Comptroller Post at Hudson

DETROIT—W. J. Reuscher, formerly vice president and treasurer of Bendix Home Appliances, Inc. has been appointed comptroller of the Hudson Motor Co. here, A. E. Barit, Hudson president and general manager, has announced.

Tops the Field

ULTRA-COLD

41-S

60-A

81-S

112DBL

The forecast is "ceilings unlimited" for dealers who handle the ULTRA-COLD line of freezers, refrigerators and ice cream cabinets. Choice territories still open in the U. S. and throughout the world. Fill out and mail the handy coupon for a dealership in your area. . . . Do it today!

Patented
No. 2,442,719

Zero Plates as cold as
6 degrees below

ZERO

With air at BLIZZARD Speed, Cools Beverages faster than any other cooler. Yet a control keeps the beverages at the exact desired temperature.

34 case complete with
½ compressor unit
List \$736.60

Dealers Wanted

Manufactured by

ZERO-PLATE CO.
1400 S. HASKELL AVE.
DALLAS, TEXAS

JOE BOOTH CO.
901 COLLARD ST.
FORT WORTH, TEXAS

ULTRA-COLD

ULTRA-COLD INC.
2615 EXPOSITION PLACE
LOS ANGELES 16, CALIF.

ULTRA-COLD, Inc., 2615 Exposition Pl., Los Angeles 16, Calif
Gentlemen: Please send prices and latest literature concerning your:

☐ Commercial Equipment ☐ Domestic Equipment

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COMPANY _____
STREET _____
CITY _____ ZONE _____ STATE _____

Promoting Courtesy

Prize-Money Offers Stimulate Employees To Serve Customer Better, Food Merchants Agree

CORONADO BEACH, Calif.—Unusual methods of building courtesy among employees were outlined by a number of food merchants at the annual meeting of the Super Market Institute held here recently. They might well have an application in appliance retailing.

Clifford C. Echols, Echols Grocery Co., Atlanta, Ga., pointed out that his organization had achieved some success with a "courtesy dollar."

Each day a number of customers were given a crisp new dollar as they came in the door. Instructions were that the dollar be given to the most courteous employee in the store. Both employees and customers enjoyed this simple device and it paid unusual dividends in courtesy.

Gene Schear, Liberal Markets, Dayton, Ohio, outlined a courtesy program that had paid enormous dividends to his stores.

The company ran a contest seeking from employees the best suggestion on what the employees could give to the company to aid it.

When the winning suggestion of "courtesy" was received, a similar contest with similar prizes of \$100, \$50, and \$25 was begun seeking the

best kind of campaign that could be used to underscore courtesy.

Employees suggested that all sign their names to a scroll and that it be posted in all stores (in blown-up form.)

The company then featured the scroll in large space newspaper advertising, pointing out that this was the employees' idea of how to serve the customer best, and urging the public to aid in its program of discovering "its most courteous clerk." Thousands of ballots were received from the public.

"We were delighted to find," said Schear, "how many really fine people we had working for us."

He then said that Liberal Markets continued for months to receive the benefits of the courtesy campaign by featuring special services to customers in its advertising as "Liberal Courtesies."

Firm Disposes of Commercial Equipment In Clearance Sale

BUFFALO—All Refrigerated Fixtures, Inc. here, announced that its warehouse has been sold and that it is disposing of a large stock of merchandise at a clearance sale.

Offered at special prices are refrigerated display cases, commercial freezers, butchers' equipment, and coolers. A feature was a refrigerated display case, regularly \$1,195, offered at \$850.

Walk-in coolers of all descriptions were offered at up to 40% off. Also featured were reach-in coolers, milk coolers, water coolers, ice makers, beer dispensers, air conditioners, and large commercial refrigerators.

Woods Elected Vice President Of Philco Industrial Division

PHILADELPHIA—Leslie J. Woods has been elected vice president of the Industrial Division of Philco Corp., it was announced by James H. Carmine, vice president.

Display of Heat Pump Attracts Crowds to Dealer's Store

DENVER—A small heat pump on display at Herb Names, Inc., is fascinating visitors to the local retail appliance outlet.

Students of the Midwest Trades School of Refrigeration built the working model under the supervision of M. E. Waters, engineer.

Powered by a 1/2-hp. motor, the "fireless furnace" pumps heat out of city water delivered through ground pipes and distributes it through a small grille. The model will actually heat a trailer or one room as it stands, according to the refrigeration school.

On duty at the display, Waters points out that the reverse cycle heating and cooling unit is merely a modified form of the electric refrigerator. He explains that every refrigerator is also a heater, pumping heat out of the food space and blowing it away by means of a "radiator" and fan.

Dr. Emil Ries Appointed As General Manager of Du Pont's Ammonia Dept.

WILMINGTON, Del.—Appointment of Dr. Emil D. Ries as general manager of Du Pont Co.'s ammonia department was announced recently.

Assistant general manager since July, 1946, he succeeds Walter Dannenbaum, who became a vice president, director, and member of the Executive Committee of the company, Nov. 15.

Dr. Ries has been with Du Pont since 1930. At that time he became manager of the Ammonia Department's experimental plant at the Belle, W. Va., works, near Charleston, W. Va.

He was a group leader for the ammonia department at the Du Pont experimental station, Wilmington, from 1932 to 1936.

He entered sales work then and in 1939 was appointed assistant director of sales for the department. In 1944, he was made director of sales.

Seeger Pays Out 4 Times Dividends of Prior Year

ST. PAUL—The Seeger Refrigerator Co. here paid out more than four times as much in dividends during the fiscal year ending Aug. 31, 1948 as in the previous fiscal year, a financial statement issued by the company has revealed.

The statement also revealed the profits, net income, and surplus had substantially more than doubled. Sales increased to a level almost double what they were for the previous fiscal year.

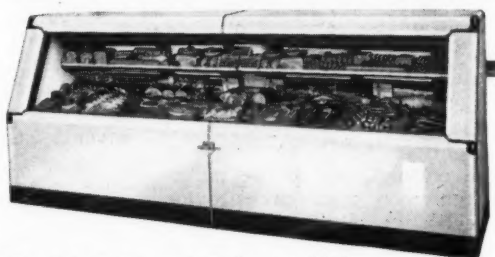
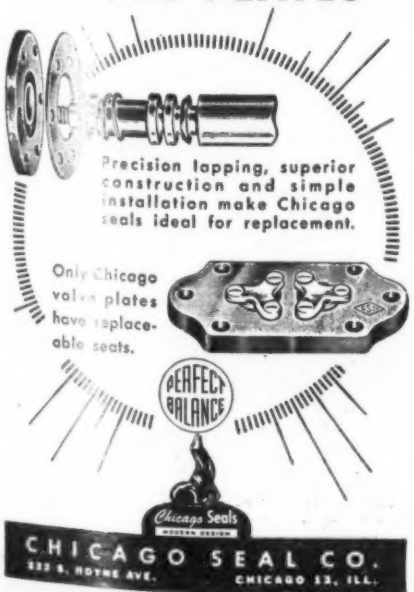
Sales for the 1948 fiscal year totaled \$62,154,290 as compared with \$34,891,706 last year. Profits from operation this year were \$6,410,747 which compares with \$2,800,073 made last year.

Net income amounted to \$3,576,362 this year and \$1,453,005 last year. Dividends paid totaled \$935,000 this year and \$220,000 last year. This year's surplus was \$2,641,362 as compared with \$1,233,005 last year.

Most New Applicants Favor Electric Cooking In Nashville

NASHVILLE, Tenn.—"Records of new applications for residential electric service during the past six months show that 2,181 new applicants signed up for electric cooking, while only 1,185 planned to use any other form of cooking fuel," the Nashville Electric Service stated in a recent advertisement promoting electric cooking.

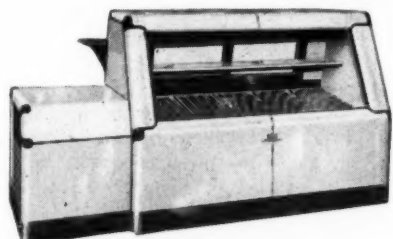
PLAYSAFE
USE
CHICAGO SEALS
and
VALVE PLATES



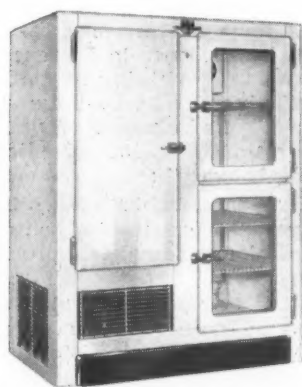
Double duty models. Lengths of 6, 8, 10, and 12 feet. Welded steel, with full porcelain exterior. Stainless and porcelain interior. Miraflex coils, K-Beam lighting, triple plate glass front, adjustable mezzanine shelf. 4-in. thick insulation.



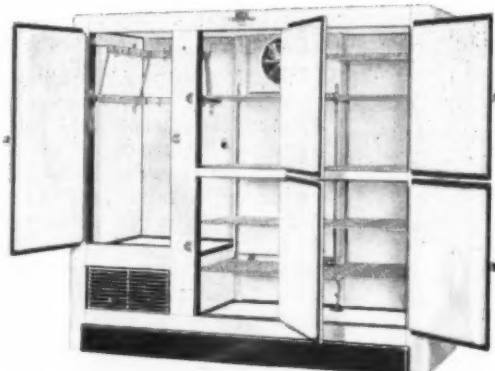
Top display cases made to the same specifications as the double duty models. Insulation is full 4-in. thick. Mezzanine shelf removable.



A self-contained display case with 6-ft. of refrigerated length. Furnished with or without the condensing unit.



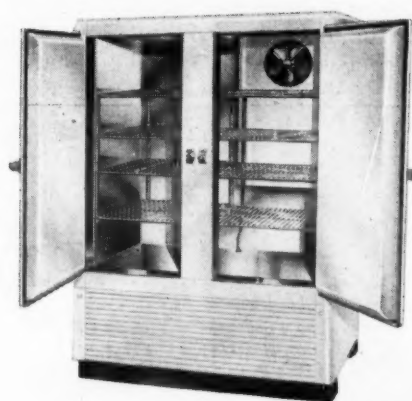
42-cu. ft. cabinet, self-contained. Solid or glass doors. Interior arrangement extremely flexible. Equipped optionally with shelves, meat rails, or bakery pan slides for dough retarding.



65-cu. ft. self-contained cabinet. Solid or glass doors. Equipped optionally with shelves, meat rails, or bakery pan slides for dough retarding. Available in black finish for florist use.

The line of least resistance

In selling commercial refrigerators today, one fact stands out emphatically: the brand name counts. Users are shy of off-brands. The KOCH reputation has been outstanding since 1883. Years and years of national advertising have made KOCH a familiar name to countless thousands of business men. KOCH produces equipment for almost every type of commercial use. Get the inside story, and you'll agree the line of least resistance is the quality line—the KOCH line.



25-cu. ft. all steel, self-contained refrigerator with stainless steel liner and white Dulux exterior. Furnished with either ice-maker or forced convection evaporator (as shown).

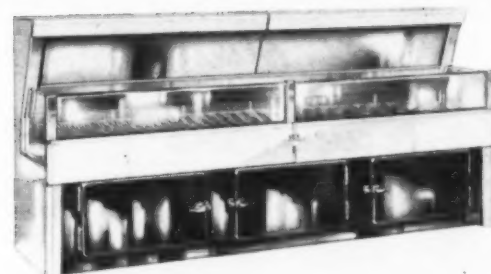


25-cu. ft. all steel, self-contained refrigerator. Stainless liner, stainless front and ends. Furnished with either ice-maker (as shown) or forced convection evaporator.

KOCH Refrigerators

NORTH KANSAS CITY 16, MO. Since 1883

Write Today For Details and Open Territories



Self-service cases for dairy products, produce, or pre-packaged fresh meats. 10-ft. long. Equipped with oversize evaporator for really cold operation, down to as low as 33°. Suitable for arrangement in continuous line-ups.

INSIDE DOPE

by GEORGE F. TAUBENECK

(Concluded from Page 1, Column 1)
ists, mechanical progress is negligible; where it increases, invention dies.

"We have difficulty in conceiving the barrenness of the life of the common man until most recent times. It comes as greater shock, moreover, to realize that an average man of the year 400 A.D. would have found himself entirely at home a thousand years later. He would have found the same housing, the same food, the same personal utensils, the same field tools, the same roads, and similar clothing.

"Worst of all, he would have found himself no better off in facing his real problems: how to get enough to eat and how to keep warm. Famine still would claim its huge annual toll, and the king still owned the trees from which, 'by hook or crook,' a pitiful fuel supply might be extracted for absolute essentials. Disease, of course, was considered a proper punishment for sin.

"For part of the world today, the spectre of peacetime starvation has been removed, health has been improved, many diseases are now under control or even eliminated, life expectancy has been increased, and our average American has become accustomed to a standard of living so high that it is the envy of the world.

"What is the reason for this great change in the tempo of improvement of the average man's physical lot? Many have asked this question. Some have come up with plausible answers—most of which do not stand up under scrutiny.

"There are those who suggest that the answer is to be found in our climate, or in the agglomeration of racial cultures, or in the emancipation of women, or in the commercialized desire of our population for amusement in its constantly increasing idle time, etc.

"There are others who ascribe our success entirely to the fact that we have produced a new race of mechanically minded Merlins. There is an element of truth in this theory, but the historians probably won't admit it."

A New Theory

"The manuscripts of Leonardo da Vinci (1452-1519) contain a large number of descriptions of machines, many well illustrated. He was not only an artist, politician, inventor, engineer, but also a professor of each of those subjects; and these manuscripts were the textbooks he and his associates used in teaching.

"Amongst his notes are suggestions for centrifugal pumps; dredges for canal building; polygonal fortresses with outworks; breech-loading cannon; rifled firearms; anti-friction roller bearings; universal joints; conical screws; screws with square threads; hydraulic presses; steam cannon; rope-and-belt drives; link chains; submarines; bevel gears; spiral gears; compasses; silk doubling and winding apparatus; lamp-chimneys; ship's logs; standardized mass

production house; wool spinning; printing press; pile driver; coin making machinery; and parachute!

"Why didn't the common man benefit substantially from this great outpouring of knowledge?"

"In the first place, few of da Vinci's inventions ever progressed beyond the sketch-book state, and when they did, their application possibilities were limited.

"For example, take the word, 'gear.' Leonardo da Vinci shows in his notebooks not only spur gears but spiral gears. Yet, few gears were actually used in those days, and these primitive applications of the gear principle were merely pins driven into wooden wheels—all were made by hand, sizes were few and materials were scarce—although the metal gears of Swiss and Italian clocks were just around the corner of time's corridor.

"The word 'gear' today represents a multitude of sizes and shapes, made of hundreds of kinds of materials on special machines—each of which is the descendant of a long line of invention, and obtainable by telephone call to the nearest distributor. It is true the ancient and the medieval civilizations had gears, but from our viewpoint, the gears they had were inferior, seldom seen, and their affect on everyday life was almost nil.

"In those days 'gear' meant a single invention; today it means a flood of inventions. Out of this selection any common man can provide for his needs, which are already incorporated within one or more of the still hundreds of other inventions he desires, and which are tested and easily obtainable.

"The history of another invention

will also illustrate the difference between the ancient European world and ours. The rifle was a 15th Century invention, and was dutifully made for kings of one nation right up until the 19th century, in pretty much the same way its inventor originally designed it. In the 17th Century, certain gun makers fled their country, and settled in the Colony of Pennsylvania. In order to sell their guns, these gunsmiths had to keep changing and improving them to meet the needs of their customers, the common men. So when the American Revolution came, the rifle, thus improved, had a great part to play in winning that war. Its superiority was proven when the Colonial riflemen were confronted by European troops carrying rifles made in accordance with tradition and the directions of their kings!

"But this wasn't all. The Revolution and its resulting U. S. Constitution parented the American Patent System. That, in turn, resulted in continuously improved guns, and also introduced the manufacture of interchangeable parts, mass production, the machine tool industry, much of the chemical industry, and thousands of exciting new products.

"Each invention in turn begets other new and useful inventions. A new design may require a new material to be compounded, and the new material makes possible other inventions, for example.

"Had you or I lived before the year 1400, and had we come upon an invention, before exploiting it we would have made an attempt at what we do in such circumstances today—that is, make a market survey. And what would we have found?"

"Our market survey at the outset would have stumbled upon one of the greatest obstacles to progress, to wit: No man had a natural right to go into business; the free enterprise system just didn't exist then. All business enterprises were owned by the king.

"From the earliest times, however, state operated businesses have been unprofitable (even the salt mines of ancient Attica, owned by the Athenian State, had finally to be operated by private contractors. Hence the sovereign usually sold or gave his monopoly to a man or a favored clique. To engage in a business was a state-conferred privilege in those days.

"The usual ancient and medieval holders of these monopolies were 'guilds' (forerunners of labor unions) chartered by the crown, and given wide powers over the public. The guild had absolute authority over the making, selling, and even use of its product, and controlled rigidly the activities (and even private lives) of those engaged in the trade.

"As the guild was a monopoly, why should it improve its product or reduce its price? The answer, it didn't; and all through history these monopolies prohibited further invention amongst their members. For example, a cooper in Florence in 1286 complained of being boycotted by his guild because he bent the staves for his barrels by means of water which, he claimed, was an advantage to all who bought them.

"In this fashion, invention which primarily benefits the common man, was almost completely prohibited for centuries.

"As an example of what were considered natural methods of control under monopoly (which are not completely forgotten today) was the limitation of the number of admissions to membership in the guild. For centuries there were only two recognized ways of getting into a trade: first, inheriting a guild membership; second, by apprenticing yourself to a master who had no sons and only one daughter, preferably home-ly. Amongst the few authentic records left by William Shakespeare was his affidavit in such a case.

"What became of the other boys? There wasn't much chance for them. Either they went into the king's army, or his navy, or his merchant marine, or crowded onto the already overcrowded farm lands. Labor was cheap, and forced labor cheapened it further. And finally, the king's victorious armies escorted home captives for slavery.

"Where, then, was the market for inventions? Answer: the king and his toadies.

"What inventions would the sovereign buy? Only two: expensive toys, or aids to waging warfare.

"Aggressive war was the one way the kings thought they could improve the standard of living of the favored

few of their subjects who might survive the war. They would receive direct or indirect benefit from the loot, and the hardest work of the State could be performed by captured enemy personnel suddenly become slaves.

"As the result, inventions for warfare have ever been pushed at a somewhat higher rate because there usually was some sort of market for them.

"This situation explains the universal practice of keeping inventions in absolute secrecy.

"And so, in the Middle Ages, we find our average European man straining for invention, with inventions all about him! All for the reason that there was no way of making him the market for inventions! The more civilized states promulgated new laws forbidding invention. Even when an invention had been adopted previously it would be squelched immediately it disrupted the well-ordered economy of the State. For example, trousers were forbidden in Rome by decree in 397 A.D., and garments were prohibited in 416 A.D.

"Many historians believe that in the 10th and 11th Centuries waves of invention came from the East. More recent investigations indicate that many of these eastern inventions were in reality Western born, were taken to the East in search of a market, and then forgotten in the land of their origin."

Incentive for Inventions Lacking

"This calls our attention to the fabulous Saracen Empire, which flourished from the 6th to the 15th Centuries, that collected and preserved the arts, sciences, and the machines of the West and the Far East and then gave them back to Europe long after their origins had been forgotten. Comparisons of the Saracen and the American civilizations show many similarities in scientific and mercantile achievement, and what is most important, individual freedom. This last similarity probably explains the greatness of both civilizations.

"Although the Saracen Empire (with its freedom for invention) was a great advance over the Roman Empire (with its prohibition of invention) it lacked the one essential preservative of a civilization: a method of ensuring a perpetual, steady flow of invention. It is only by perpetual flow of inventions into daily use that a people in a wide-spread nation can keep strong, and the bonds of economic and military defense be forged.

"For example, it is often stated that had the Roman Empire possessed a system of steam railroads, it could have survived the onslaught of the barbarians. Why didn't Rome have railroads? Steel, concrete, wood, bronze were available; wheels, bridges, and many other inventions and needed skills were present. Hero of Alexandria had a small steam turbine in operation. Hero could by law, however, use the turbine only for purposes approved by his own guild, the priesthood. He also apparently valued his head. So the power to save Rome was restricted by superior planners solely to the task of making an idol's face grimace!

"Missing was that great flow of invention needed to adapt the railroad to all the varied uses even then needed to make the railroad a success, and to induce the thousand-and-one other enterprises (based on invention) to contribute to its continuing progress."

Summary

"Great as are the everyday material benefits the average citizen receives from the induced flow of invention, and from the freedom of the inventor or his agent to exhibit and promote these new ideas, the most important qualification is the self-perpetuation of the system which permits and encourages inventors.

"All of us have seen empires and nations come and go—none of which inspired a flow of invention.

"We also have passed through many great crises in modern times. At such moments individual freedom and this induced flow of invention have been of the utmost value in saving us.

"The American Patent System is the only true inducer and spur of Invention Flow so far discovered. Its abolition or emasculation, therefore, is not merely a matter of slowing down our material benefits; it is actually a step toward national suicide."

FRESH MEAT
Stays Fresh and Salable Longer
When Stored At- **30°**
Only THERMOBANK
by **KRAMER**

Keeps Coils Frost-Free
Automatically
at Any Temperature
without

LABOR
ATTENTION
ELECTRIC HEATERS
BRINE OR WATER SPRAYS

KRAMER TRENTON CO. Trenton 5, N. J. WRITE FOR BULLETIN R147.

Uniform Building Code Amendments Govern Fittings, Placement, and Size of Heating Ducts

SACRAMENTO, Calif.—New sections pertaining to winter air conditioning were added to the 1949 Uniform Building Code at the 26th annual Pacific Coast Building Officials conference which was held here recently.

The new sections provide for materials and covering for warm and cold air fittings, and govern the size and placement of heating ducts.

The Uniform Code is currently in use in more than 500 cities and in 38 states, according to Hal Colling, executive secretary of the conference. New provisions will become effective when adopted by individual cities and towns, he said.

The section on fittings was proposed as a clarification along lines suggested by the Los Angeles Heating Code Advisory committee. It read:

"Appendix, Sec. 5110. (f), page 276. Change second paragraph to read as follows:

"All warm air pipes and fittings, cold air or circulating pipes, ducts, boxes and fittings shall be made of bright tin or galvanized iron, and shall be covered with two thicknesses of asbestos paper weighing at least eight pounds to one hundred square feet (100 sq. ft.), or with air-cell asbestos insulation, or shall be double walled, with one-quarter inch ($\frac{1}{4}$ in.) space between the inner and outer walls.

"In addition, leader heat pipes under the first floor shall be kept at least three inches (3 in.) from any combustible material or shall be protected with an asbestos shield and a one-inch (1 in.) air space. Air-cell asbestos paper not less than one-quarter inch ($\frac{1}{4}$ in.) in thickness shall be securely cemented around all leader heat pipes."

The size and placement of heating ducts were provided for in two amendments proposed by the Institute of Gas Heating Industries. They read:

"Appendix, Sec. 5102 (a), page 272. Change to read as follows:

"(a) Air Supply for Combustion. An air supply for combustion shall be provided for every gas-burning warm air furnace. Such supply shall be from outside the building into the furnace space through two or more openings of approximately equal area; one or more in or near the ceiling and one or more in or near the floor.

"These openings shall have a total net area of not less than one square inch (1 sq. in.) for each 1,000 B.t.u. maximum input rating of all fuel-burning appliances installed in such space. In no case shall the total net area of such openings be less than two hundred square inches (200 sq. in.).

"No obstruction of any kind shall be placed over these openings except wire netting, with openings not less than one-quarter inch ($\frac{1}{4}$ in.) square.

"The net area of the openings required by this Subsection shall be

in addition to that required by Subsection (b) of this section.

"Appendix, Sec. 5102 (b), page 273. Change to read as follows:

"(b) Circulating Air Supply. Circulating air used for conveying heat and for ventilation may be taken from outside the building, from inside the building, or from both sources. Where air is taken from inside the building or from both inside and outside the building, it shall be conducted to the furnace in ducts of incombustible material.

"Circulating air supply openings or ducts for gravity type warm air furnaces shall have a total net area of not less than two square inches (2 sq. in.) for each 1,000 B.t.u. maximum input of all furnaces being supplied. In no case shall the total net area of such openings or ducts be less than two hundred square inches (200 sq. in.).

"Circulating air for blower type warm air furnaces shall be conducted

into the blower housing from outside the furnace space by continuous airtight ducts.

"No circulating air supply inlet for blower type warm air furnaces shall be located in the following positions:

"1. Closer than ten feet (10 ft.) from any appliance fire box or draft diverter which is located in the same space as the air supply inlet.

"2. Closer than 10 feet (10 ft.) from any appliance vent outlet.

"3. Where it will pick up objectionable odors, fumes, or flammable vapors.

"No damper shall be placed in any air intake, except that a diverting damper may be placed in a combination fresh air intake and return air intake so arranged that, for all possible positions of the damper, the cross-section area of the circulating air intake to the furnace is not less than the total cross-sectional area of all hot air outlets."

Refrigeration Supply Co. Names Roy L. Stephens As Sales Manager

RICHMOND, Va.—Appointment of Roy L. Stephens as sales manager of Refrigeration Supply Co. here has been announced by W. E. Booth of the wholesaling firm.



Stephens was factory representative in the mid-west territory for the Wilson Refrigeration Co. of Smyrna, Del. prior to his appointment here on Nov. 15. Previously, Stephens had been a sales engineer for Detroit Lubricator Co. for 10 years, refrigeration engineer for the A. & P. Tea Co. for seven years, and assistant service manager for the Frigidaire Corp., Washington, D. C., for six years.

REMA Announces Change Of Address, Telephone

WASHINGTON, D. C.—The Refrigeration Equipment Manufacturers Association has announced a change of address for its offices to 1346 Connecticut Ave., Washington 6. Telephone number is now North 1059.

Syracuse Association Wants Furnace Installers Licensed

SYRACUSE, N. Y.—The Syracuse Sheet Metal Roofing and Heating Contractors Association will propose a heating code for the city, A. G. Sommer, secretary of the organization, announced recently.

Sommer said the association will ask the Common Council to require that all furnace installers have a city license and be bonded for \$5,000. No such license is issued at the present time.

A further requirement would limit licenses to persons passing an examination governed by the national heating code.

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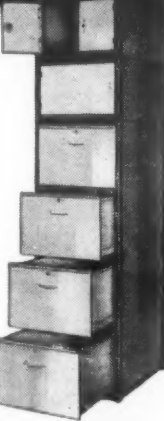
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Guarantees on Commercial Equipment Draw Criticism on Various Counts

Unit Producer States Case for Standard 'One Year from Date of Manufacture'

"Guarantees from the Condensing Unit Manufacturer's Standpoint"
By H. M. Kelso, Tecumseh Products Co.

We have been asked to discuss with you the matter of warranties on compressors and condensing units. In accepting the invitation of your committee, we made it clear that we could not presume to speak for the entire industry, but rather would give you our own company policy and the reasoning back of that policy. Fundamentally there are two theories of warranties. The first of these is an assurance to the ultimate purchaser that there are no mechanical or other defects in the equipment purchased.

The second is protection against the possible wearing out of any part or parts in normal use and service over a given period of time. The one protects against concealed defect, the other is an insurance policy covering normal usage.

Normally, a concealed defect in material or workmanship will become apparent within a relatively short time. In the refrigeration industry, it is quite common practice on such warranties to limit the time of liability to one year.

In the case of our own company, our warranty is one year from date of manufacture with an additional three months allowed for time in

transit and process. This warranty has proven satisfactory with all manufacturing customers, some of whom purchase several hundred thousand units per year and others only a few hundred. It has also been our standard policy with jobbers, dealers, and the other normal merchandising channels of the refrigeration business.

The extended warranty or insurance policy type of warranty has been, and is, very common with the manufacturers of complete appliances. In many cases the manufacturer of the appliance has carried his own warranty beyond the first year and a flat fee of \$5 or \$10 has been added to the manufacturer's invoice price to cover this service. All of our customers furnishing extended warranty on their products, fall in the category of those who carry their own warranty beyond the first year.

This is a mere statement of fact. There can be no controversy. The two theories of warranties are in existence and each theory has its own proponents. It is our purpose now to analyze these two divergent ideas.

At the outset, let us get one point perfectly clear. Any warranty must

ultimately become an item of cost to the user. The bookkeeping of handling warranties is not important.

Prime manufacturers, like ourselves, tend to add a scheduled or flat fee to the factory cost which is set up as a warranty reserve.

Many manufacturers—particularly appliance manufacturers, tend to add the warranty as an additional item added to the selling price and passed on to the user. In either case the amount, which is collected with the original sale, is set up in a warranty reserve account and is a direct charge in the final selling price.

Somebody has to pay for every penny expended for in-warranty service. The question is, then, how much service is necessary and what do we have to charge for that service?

Offers Data on Costs

On our units, compressors and systems, the one-year warranty reserve set up in our factory is very nominal, only about 5% to 10% of the amount usually charged for five-year warranty on a domestic refrigerator, for example. We have broken even on this small warranty reserve over a period of years.

How is this possible? Naturally, the experience must have been good. In-warranty returns are well under 1% from the field. But of greater importance is the fact that no paper work is required other than the issuance of a factory service order. The date of manufacture is obtained from the serial number.

If the unit is in warranty, a unit

The full panel discussion on guarantees as presented before the recent National Association of Refrigeration Contractor's convention is presented on this and the following two pages. This includes presentations by a manufacturer of condensing units, a manufacturer of valves and controls, two refrigeration parts and supplies wholesalers, and a contractor. These are followed by a resume of discussions from the floor.

built to new equipment standards is set as a replacement and carries a new unit warranty. If out of warranty, the appropriate charges are made. Such a system reduces warranty replacement to its bare fundamentals.

Now compare such a system of handling service with, say, a five-year warranty in which the warranty runs from date of installation. Here elaborate card records must be kept on each individual installation. Usually the dealer fills out and mails in to the factory a warranty card when the initial installation is made. If and when the unit is returned for service, the records must be looked up and changed. The replacement must be made through the usual merchandising channels and, frequently, a series of debits and credits are involved between the manufacturer, distributor, and dealer.

Also, very often, the organization making the exchange is entitled to some sort of compensation for making the replacement. Such warranty procedures, in large companies, require a separate, costly department with a staff of bookkeepers, order clerks, file clerks, etc., and become a major item of cost. That is why such extended warranties cost 10 to 20 times the amount which we require to operate our service.

Again, ultimately the customer pays. Is it worth it?

Many years ago, the automobile manufacturers found it expedient to give extended warranties on cars.

Now the average warranty on an automobile covers only a period of 60 to 90 days or driving to two or three thousand miles.

Now I doubt that there is a man in the room that questions that type of warranty, regardless of make of car that he is buying. Some cars are better than others, even at this date, but the plain matter of fact is that automotive manufacturer, over a period of years, has standardized to the point where all cars are accepted as good.

Back in the twenties or even early thirties, the refrigeration business was in a parallel position to the early automotive industry. Some companies still make better refrigerators and refrigerating units than others, but all standard makes have a high degree of consumer acceptance. Personally, I doubt that extended warranties are the prime selling point in selling any refrigerating equipment today.

In conclusion, our company has adopted the policy, with respect to warranties, that we can best serve the industry by keeping costs to a minimum and covering only the period when a concealed defect might necessitate a replacement.

Also, we are committed to a policy of one year from date of manufacture, with an additional three-month allowance, making an effective warranty of 15 months from date of manufacture. We have no quarrel with those who find extended warranties desirable or expedient.

Valve Manufacturer Seeks Swing To 'Automotive Type' Guarantee

"Guarantees from the Valve and Control Manufacturer's Standpoint"
By F. G. Coggin, Manager, Refrigeration Div., Detroit Lubricator Co.

My remarks express only my company's and my own opinions.

Guarantees have two general aspects: the legal one wherein the seller attempts to fix his legal responsibility for the performance of his product—and the sales aspect wherein the seller, by his guarantee, makes his product more desirable than his competitors. We all know, and have seen instances, of guarantees becoming as competitive as prices.

There is no limit to the liberality of a guarantee so long as the selling price will support its cost—and may we emphasize that a guarantee enters into the cost of a product—as do brass, steel, labor, etc. All are combined with a profit to arrive at the ultimate selling price.

The terms of a guarantee are ultimately determined by the buyer—not the seller. Does he want the cost of maintenance over an extended period of time included in the original selling price? A Rolls Royce and a Cadillac are both fine cars—the Rolls carries complete service to the original purchaser for the life of the car and sells for upwards of \$17,000—the Cadillac is guaranteed for 90 days and sells for \$3,500.

Most guarantee problems evaporate when all parties involved in the sale of a product thoroughly understand two points:

1. A guarantee is a part of cost of production and not something one gets for nothing.
2. The exact terms of the guarantee.

These terms may vary from the extreme expressed by the Latin term *Caveat Emptor* meaning "Buyer Beware," to the "not for life—but forever" guarantee of a well known pen manufacturer. Between these two extremes lie the guarantee policies of modern industry.

Let's examine our own industry—it would appear that a rule of thumb may be applied to refrigeration equipment guarantees. "The closer the guarantor is in the sales chain to the ultimate consumer, the more liberal the guarantee," that is, Frigidaire, G-E, and others operating through direct factory outlets, are generally more liberal than those

who sell through independent dealers. We have seen this develop in the domestic field and more recently in the unitary commercial field.

We, as accessory manufacturers, have refused to match our guarantee to that of the end product because we could see no end to the daisy chain.

Product failure is a very real cost of doing business and should be treated as such. We know that in the building of expansion valves a given number will after assembly and seasoning show at the final test to have lost their charge. The cost of reworking these valves is included in our ultimate selling price.

The same applies to a contractor. He, from his cost records, knows the average cost per job of warranty service and this cost must be a part of the price he bids to get the job.

Suggests Type for Contractor

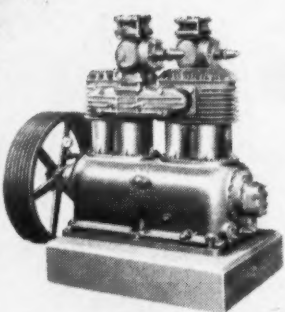
We are familiar with the procedure followed in bidding a job by a very successful contractor. Included in his bid are the following charges over and above the actual cost of material, labor, and profit:

For each TX Valve	\$6.00
For each solenoid valve, pressure or temperature control	\$9.00
For each blower coil	\$12.00

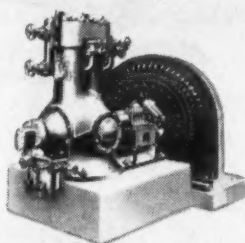
These amounts are set up as a reserve for one year and the installation is hence service free for that period. This same contractor guarantees parts sold over his counter for 90 days. This, to me, adds up to a very intelligent approach to the contractor's guarantee problem. He understands our terms and his customer understands his.

To summarize our specific thinking, we feel the automotive terms of guarantee approach the ultimate where mechanical equipment is involved. Under these terms the buyer is insured of initial satisfactory performance of the product, but future maintenance is the customer's responsibility as the necessity arises.

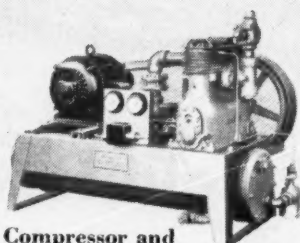
This ultimate cannot be attained by an accessory manufacturer on its own. It requires some changed thinking in our industry which we feel is slowly taking place.



Freon Compressors
7 Model Sizes



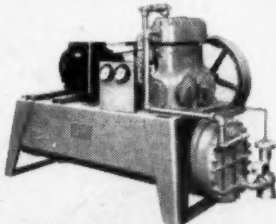
Ammonia Compressors
9 Models
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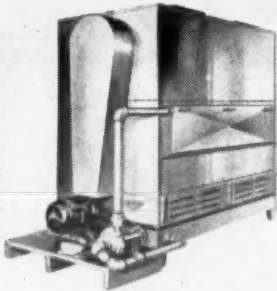
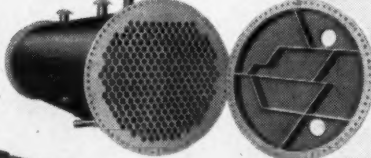


Ammonia Booster
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capacity



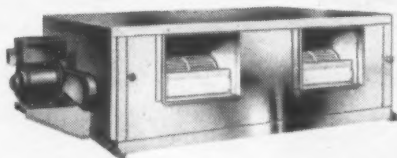
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Contractor Calls for Simple Extension of Maker's Guarantee, No Contingent Liability

"Warranties From the Standpoint of the Contractor."

By Emil Flanik, Allied Refrigeration Engineering Co., Cleveland

When the refrigeration industry first attempted to sell the low pressure fractional horsepower equipment to the public, the public acceptance was such that it was necessary to give a one year complete warranty on materials and labor.

We find most refrigeration contractors still adhere to this ancient policy of a bygone day. Contractors know that it is costly, unwise, and unnecessary.

We all know that as times change, methods of doing business must also change to keep in step with progress. We also realize that as the years have rolled by, great improvements have been made in engineering refrigeration machinery and equipment.

You contractors are representatives of an industry which is new. It has been born since most of you have attained a mature age. The "Freons" have created this new industry.

I state that you are confused, that you have looked in the past for business leadership and for guidance from the manufacturing group, and they have let you down. You are being used to further their profits, to assume responsibilities which are theirs; to assume contingent liabilities which are not rightfully yours. All of us know that the present so-called manufacturers' warranties do little except unload the responsibility for failure of a piece of equipment on the contractor.

The Simple Extension Plan

Transportation charges prepaid plus the right by the manufacturer to determine whether the equipment was defective when it was shipped are just two loopholes. In an address at the last annual convention held in Cleveland Past President Warren W. Farr said, "the contractor has been seriously penalized in fulfilling guarantees and warranties which have been written primarily by manufacturers and without consultation with contractors. The point is presently proposed that the contractor should pass on to the consumer the manufacturer's warranty as it is given to him, rather than to indicate to the consumer that as a contractor he will fulfill all of the terms of the warranty."

Some contractors groups in various sections of the country have adopted the plan, whereby the manufacturer's warranty is extended to the purchaser and the contractor assuming a ninety-day free service warranty.

Some contractors cannot change their warranty policy because their contracts with the manufacturer that they represent have clauses such as the following: "Dealer agrees to install any part or parts furnished by manufacturer under its standard one year warranty and to furnish service during such warranty period on any manufacturers' products or parts installed in dealers territory without charge to the owner or manufacturer."

The Warranty Committee has noticed that some modification of manufacturers' contracts with contractors have been taking place.

In a recent letter from one of the largest electrical and refrigeration manufacturers in the country the other extreme is noted. Quoting from this letter:

"As between the contractor and his customers, the matter of warranty, of course, is one to be negotiated between them as parties to the contract for the sale and installation etc. of equipment."

Your association has in its files a letter mailed by an air conditioning company to its dealers. The letter being too lengthy to quote in full, I would like to just quote the following:

"That because 'Freon' has been charged into the machine prior to shipment, that we guarantee the 'Freon' to be in the machines at the time of delivery or until expiration of the warranty period. In a large majority of cases the entire charge of 'Freon' is in the machine at the time of delivery etc., however, we assume no liability for the loss of any 'Freon' for any reason whatsoever, and do not agree to furnish etc., etc., required amount for successful operation."

It would be interesting to know how much "Freon" contractors have given away in warranty periods on

factory-built self-contained pieces of equipment. It also would be interesting to know if any manufacturer or manufacturers replace "Freon" as a policy to their contractor or dealer when used on self-contained equipment in the manufacturers' warranty.

Let us look at some of the things that a contractor is confronted with in his everyday pursuit of business.

1. First sells himself, his honesty and integrity to the customer.
2. Finds out what the customer wants.
3. Sells him what he needs.
4. Offers engineering service.
5. Purchase good material from reputable manufacturers.
6. Installation and balancing of system.
7. Free adjustment period.
8. Have an honest profit left when the free adjustment period has been concluded.

If the job is sold, installed and serviced right, the customer is happy and invariably leads to future repeat sales.

Effect of Warranty on Profit

Now, let's examine the loopholes to see what happens to the profit when warranty goes to work.

Let's take engineering first. In the past the contractors have engineered jobs; taken the job's B.T.U. requirements; and selected equipment from reputable manufacturers' catalogs. After installing the equipment the contractor found, after spending much money on warranty, that it was necessary to purchase and install larger equipment resulting in used inventory stock that he didn't want or need.

The contractor, finding that the manufacturer would not accept the return of the equipment or pay for the wasted hours used up in finding out and correcting the job due to inaccurate published B.T.U. rating found that it was simpler to buy the next size piece of equipment, thus making certain that he would have the correct size.

Many franchised contractors have been afraid to complain to the manufacturers for fear of losing their franchise. Here is an example:

After attending a service and sales sectional meeting that one large manufacturer held for its dealers, one of our members voiced his complaints about the warranty service required to keep the equipment sold. A few days after the meeting he received a letter. I thought you might be interested in hearing this.

"Of course, I received numerous suggestions and various minor criticisms" (he is referring to meetings held all over the U. S.) "but nothing like the reflection you cast on our equipment."

"Obviously, if you are still set in your attitude I doubt whether you can do the desired selling job on our equipment and the same applies to service work. Therefore, I invite your conscientious reactions for the mutual interest of all parties concerned."

Defective Upon Arrival

One of the most irritating and profit wasting items that the contractor has to contend with is repairing new equipment as soon as it is uncrated, at the contractor's expense, and to add insult to injury, freight charges necessary to replace the defective parts which have never been in operation also must be assumed by the contractor.

To quote from a letter in our files. "I want to mention freight charges of \$1.35 each way for an air-cooled condenser they shipped to us to replace a bad one. The defective condenser was removed from a new 'Who-Zit' compressor unit which we had taken to the jobsite, installed, added gas, checked for leaks before starting and found that it was necessary to disconnect and replace with a second new compressor unit."

"The cost for material and labor made necessary because of the defective new merchandise was \$59.54. This I feel I should not have to assume, but the supply house that handles the 'Who-Zit' machines tells me that they are living up to their warranty by giving me a condenser replacement at no charge."

The above example is a good issue with which to go to the mat with the manufacturers.

Exploring the Field of Commercial Refrigeration Guarantees



F. J. Zoppel of the Columbus Refrigeration Corp., Columbus, Ohio, presides as moderator at the panel discussion on guarantees held during the N.A.R.C. convention. Participating in the discussions were: left to right behind the table, Harry Jessel, Thermal Co., Inc. (wholesaler); Jack Glass, Chase Refrigeration Supply Co. (wholesaler); F. G. Coggin, Detroit Lubricator Co. (valve and controls manufacturer); H. M. Kelso, Tecumseh Products Co. (condensing unit manufacturer); Emil Flanik, Allied Refrigeration Engineering Co., Cleveland (contractor). Following the presentation by these men there was discussion from the floor.

So that the accessories manufacturers, by which I mean driers, sight glasses, water valves, expansion valves, controls, etc., don't feel that I am slighting them, let's take but a moment to give them consideration.

The contractors, as a majority, are pretty good men and quite fair to settle problems. The accessory manufacturers have gotten away with murder in the past when they have just replaced their little defective part and made the contractor stand the total cost of refrigerant, labor, etc., when jobs were in warranty.

When a manufacturer's part becomes defective a few times that is one thing, but when you replace the part two, three, and four times on the same job, I take the stand that

the manufacturer should pay all costs, including refrigerant and labor. For them to assume that the contractor should stand the brunt of the expense incurred due to their negligence is unthinkable.

In conclusion, I would like to mention the ideal warranty from my personal viewpoint, one that some contractors' groups already have in use. It extends the manufacturers' warranty directly to the purchaser with the contractor giving a 90-day warranty to the customer. All labor performed during regular working hours to be given free, and customer to be billed for the difference between day rate and overtime rate for work done after regular hours. Saturdays, Sundays, and holidays.

Contingent liabilities on spoilage, damage, etc., from defective equipment or breakdowns to be eliminated. An automobile dealer or manufacturer does not assume contingent liabilities on your life when you buy and drive his car.

I would like to close with this thought. An adjustment period warranty is a token of honesty and integrity. A long-term warranty is an insurance policy to your customer. You are covering up the manufacturers' mistakes, absorbing his rightful losses, and taking the customer's abuse which otherwise would go to the manufacturer where it belongs.

You are not in the insurance business. Get into the refrigeration business.

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What Are Wholesaler and Contractor Responsibilities on Unit Guarantees?

"A Wholesaler's Viewpoint on Condensing Unit Warranties"
By H. W. Small, President, Thermal Co., Inc., St. Paul

It is strange that the industry that guarantees our cars for only 90 days or 5,000 miles will guarantee our refrigerating machines for one year or even five years.

Driving our automobiles at 30 miles an hour 16 hours a day, we would find that our warranty had expired on the 11th day. On the same basis the one-year warranty on the refrigeration unit would be the equivalent of 175,000 miles of driving. This in spite of the fact that commercially applied condensing units are subject not only to mechanical hazards, but also to the hazards of misapplication and faulty installation as well.

Off hand, it would appear that the manufacturer could ill afford such liberalism. This is not the case, however, and a careful study of the warranty will disclose the reason. Universally the manufacturer agrees to replace the defective part on an f.o.b. factory basis, should inspection prove it to have been of faulty manufacture.

None agree to replace worn-out parts. All disavow all types of contingent liability. I refer particularly to open-type machines and not to packaged items or certain types of hermetic units.

It is obvious that a strict interpretation of this type of warranty would reduce the number of parts replaced to a minimum. Unfortunately the installer of the machine

doesn't believe the warranty! He often takes the position that the warranty will guarantee to him the satisfactory operation of the unit for one year including parts in need of replacement due to wear, abuse, and even misapplication.

For example, units marked "For Use with Freon-12 only" have been returned for replacement after being used on methyl chloride systems. Frozen water-cooled condensers have been sent back on numerous occasions, and so on.

The wholesaler is surely a "middle-man" on condensing unit warranties. He is up against a strict warranty from his supplier and can expect few policy adjustments. His customer wants the guarantee to be all inclusive. He asks for lost refrigerant, labor, mileage, and wants 100% of his profit protected.

The wholesaler is forced to make policy adjustments far beyond that which he will receive from the manufacturer; all of which has to be done within a below-average profit margin.

As wholesalers, our warranty problems are very real and often painful. We feel that our customers often expect too much. Some try to take advantage of us. By and large we recognize the contractor's predicament and hope an equitable solution can be found to improve both our customer's and our own profits.

The basic problem is simple. Our suppliers only guarantee to replace

parts which have failed due to manufacturing defects. Our customers take the same unit and provide the user with an all-inclusive guarantee of satisfactory operation without cost for either labor or material.

Unless the installer provides ample reserves for this service, he is apt to find himself holding a "hot potato." Naturally he wants to pass it on, and the wholesaler is standing closest. He's the man in the middle!

I believe the solution to this problem can only be attained by an entirely new conception of warranties on assembled commercial refrigeration systems. To be specific, I suggest that a sealed time-recording device be placed on the condensing unit motor. The warranty should then provide for 1,000 hours or 90 days of satisfactory operation, whichever ever came first, with a guarantee of at least 500 hours on intermittently used systems. This is both reasonable and equitable. So much for the future.

In the meantime, we have to live with our present problems. Contractors and wholesalers should be considerate of each other. We each can remember a few cardinal points. To summarize:

THE CONTRACTOR

(1) Should provide adequate reserves for the risks undertaken which are not actually and fairly covered by your supplier.

(2) Should be sure the system has been checked and properly installed before leaving it.

(3) He should not ask for unfair adjustments.

(4) He should make only reasonable guarantees that are equally fair to himself and the user.

(5) He should not expect some sup-

plier to bail him out of his bad jobs. (6) He should inspect all shipments for damages before signing his freight bills and present damage claims to the carrier and not the supplier.

THE WHOLESALER

(1) Should not sell to customers who lack sufficient experience to properly install and care for the operation of the equipment purchased.

(2) Should make proper adjustments promptly.

(3) Should carry adequate repair

parts to protect his customers' interests.

(4) Should not give ill-considered advice.

(5) Should not give flat application recommendations unless he is prepared to back them up if they turn out sour.

Both the contractor and the wholesaler are necessary cogs in the industry machine. Even though this machine is working satisfactorily, there is no reason why it cannot be improved by constantly trying to fit the cogs closer together.

Wholesaler Points to Associations as Possible Mediators in Guarantee Matters

"Guarantees from the Wholesalers Standpoint on Valves and Controls"
By Jack Glass, Chase Refrigeration Supply Co., Chicago

Let's consider the wholesalers function regarding guarantees on valves and controls.

Where the wholesaler is the manufacturer's outlet for a product, the wholesaler follows the manufacturer's policy regarding the guarantees of the product. To the very letter, you undoubtedly are aware of the replacement policies that your wholesaler extends to you—the wholesaler's intention is to replace valves or controls to you as fast as possible.

Our company accomplishes this by replacing the item either by shipping it back to the customer the same day, or by exchanging it over the counter on receipt of the defective product.

I would like to elaborate just a bit on the number of times we must handle a replacement—there are actually six different times the product is handled:

1. Wholesaler receives product.
2. Wholesaler ships to customer.
3. Customer returns to wholesaler.
4. Wholesaler returns to manufacturer.

5. Manufacturer returns to wholesaler.

6. Wholesaler returns to customer. In each case we pay the freight charges.

It is obvious that the wholesaler is subject to the demand of his valued customers and he is also subject to the various requirements necessary to maintain his position with his valued suppliers. It is also obvious that due to the numerous sources of supply with whom the wholesaler does business to furnish the thousands of items needed to render the proper service to his customers, he is constantly on the alert to advise the suppliers relative to the varied opinions which come to his desk from time to time by way of his customers.

It should be remembered that any problems confronting the wholesaler's customer is a concern of the manufacturer. N.A.R.C., R.S.E.S., R.E.M.A., and the R.E.W.A. all have standing committees for trade relations through which all pertinent matters should be channeled.

Floor Discussion Reveals Many 'Gripes' Against Present Warranty Practices

Question—"Jessel said it should be the obligation of the contractor or dealer to discover any concealed damage caused in shipment, and that he should complain to the carrier, not to the wholesaler. Are we to assume then that the wholesaler delivers the material in perfect shape to the carrier?"

Answer—(Jessel)—"I believe this statement refers to big equipment. When you receive it from the carrier, you should inspect it, not for hidden damage but obvious damage such as damaged fins, etc. The man who gets it, the first man, should tell the carrier. I wouldn't say that the wholesaler's responsibility ends with delivering the material to the carrier, but the contractor should help in getting the claims from the railroad."

Palen—"Referring to equipment shipped from the wholesaler's warehouse and received in a good crate but is damaged, isn't that the wholesaler's responsibility?"

Jessel—"In that case I agree with you 100%. I think it would do wholesalers a lot of good if they had experience as retailers or contractors because contractors do have a lot of problems."

Why Short Warranty Is Sought

Question—"Does it really make any difference whether the contractor or the manufacturer stands the expense of making good on warranties. Won't the contractor's customers have to stand the expense ultimately?"

Answer (Flanik)—"What we want is a shorter warranty. The contractor covering service on warranty jobs can make money only on labor, but with the present union costs, he can't make money on labor either."

Question—"But if the manufacturer has to make good his expense he'll charge you for it anyway, won't he?"

Answer (Flanik)—"Not necessarily. Manufacturers always say they have anywhere from 20 to 2,000 inspections. They never have less than 20, they say. If these inspectors aren't doing a good enough job to catch defective products, they should be fired."

Comment (John Spence, service manager, Hussmann)—"Our company has under contract more than 500 service companies. About a year

ago we made a survey to determine how much equipment and parts these firms had to replace. One contractor on 182 installations had to replace 12 expansion valves and 16 dehydrators. Another outfit on 111 installations replaced 98 expansion valves and over 100 dehydrators. It is my opinion, however, that if manufacturers tried to include such charges in their costs, the whole refrigeration industry would be penalized."

No Guarantee of Performance

Comment (Walter McCarty, Chicago contractor)—"If you analyze the manufacturers' warranties you'll find that they fail to guarantee that the equipment will produce one B.t.u. of refrigeration, only that they will replace a defective part."

Question—"What do you think about the manufacturer who operates off your bankroll to make condensing unit replacements. One manufacturer had \$2,500 of our money on three compressor replacements. The compressor body was billed to us at almost as much as the whole unit. It took us three months to get back into good financial shape."

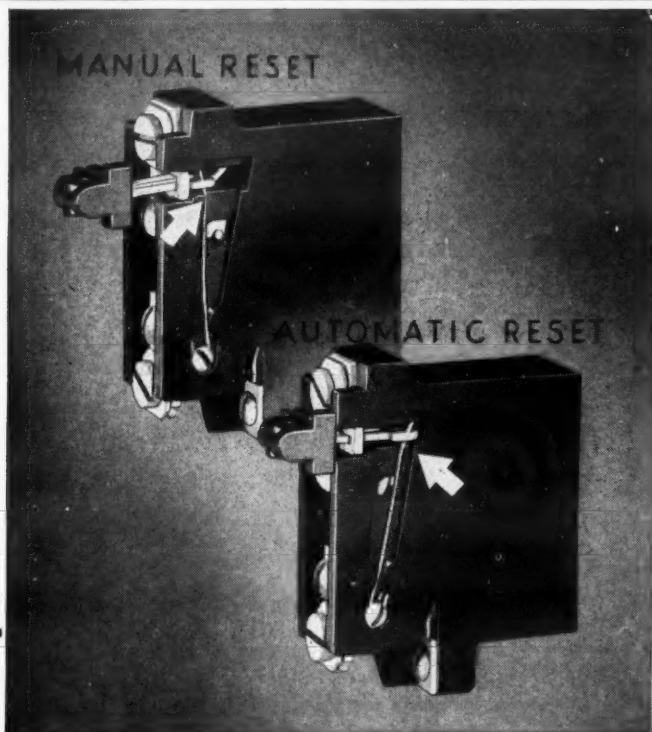
Answer (Kelso)—"What other manufacturers do is really not our business."

Comment (from the same contractor)—"I disagree. It is your business to know what other manufacturers are doing. You have an association just as we do to bring this matter up for discussion."

Comment (H. E. Wheeler, Chicago contractor)—"The manufacturer's contention that better inspection and checking of products and shipments would add to the cost is not to the point. If manufacturers can make a better valve, contractors could afford to pay three or four times as much for it."

A motion was proposed from the floor that a committee be named by N.A.R.C. to discuss guarantees with manufacturers. F. G. Coggin of Detroit Lubricator Co. pointed out that Rema had a trade relations committee set up to handle such matters.

E. S. Wright, retiring N.A.R.C. president, stated that the N.A.R.C. board already had a committee functioning on the matter of guarantees, and that early action is likely.



A SIMPLE CHANGE OF SPRING POSITION GIVES

Automatic or Manual RESET

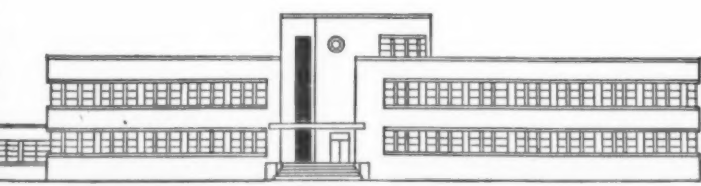
IN PENN MAGNETIC MOTOR STARTERS

A simple change in the spring position is all that's necessary to convert the new Penn Motor Starter from manual to automatic reset. In commercial refrigeration it is sometimes desirable for overload relays to reset automatically after temporary overload condition has corrected itself, and thus prevent possible spoilage of perishable goods.

Complete panels, incorporating motor starter or contactor with appropriate Penn Controls for

pressure, temperature and humidity regulation are now available from one source, with *undivided responsibility*. Penn motor starters or contactors are also available with Type 1 enclosures. Built in sizes 0, 1, and 1-1/2. Ask your wholesaler, or write now for Bulletin 2705-A containing detailed information. Penn Electric Switch Co., Goshen, Indiana. Export Division: 13 E. 40th St., New York 16, U.S.A. In Canada: Penn Controls Ltd., Toronto, Ontario.

PENN



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Question: How Should the Differential Temperature Difference Be Computed?

Do you have any questions or problems in air conditioning application which need an authoritative answer? If so, write to AIR CONDITIONING & REFRIGERATION NEWS, and James J. LaSalvia, veteran air conditioning engineer and author of the "Key to Air Conditioning" series now appearing in the NEWS, will do his best to supply an answer.

Mr. LaSalvia will be pleased to discuss problems readers may have concerning the application of air conditioning.

Young Radiator Co.
Racine, Wis.

figures of 17° F. and 18.5° F. for the differential temperature difference and would greatly appreciate your explaining this to me.

Figuring the exact air requirements always has been confusing for me and so I was pleased to see your method for determining this capacity.

J. ROBERT BURG

Editor:

I have been studying the example problem in your article "The Key To Air Conditioning" in a recent issue of AIR CONDITIONING & REFRIGERATION NEWS. I have been unable to determine how you arrived at your

Answer: LaSalvia Explains Vital Design Calculations for Air Cooling Systems

Answer: In order to keep abreast of these articles it is necessary to read all of them as they are issued, as they are cross referenced.

The reason I presume that you have been unable to determine how I arrived at the figures of 17° F. and 18.5° F. for the Differential Temperature Difference (D.T.D.) in the problem of the Aug. 16 issue in the NEWS, is that you missed the article on this very point in the NEWS in the Aug. 25 and Sept. 1, 1947 issues.

As these issues came out a year ago, and probably there is no chance to get them, and as both I and the NEWS are very anxious to answer the questions of our readers, I will review this point which is a very important part of all air conditioning systems.

On all air conditioning systems the first step after making the survey is to calculate the heat gain. When figuring the heat gain it is necessary

that we include the heat given up by the motor to the air handled by the fan.

To do this we must first determine the approximate amount of air to be handled, from this we determine the size of motor to be used. This is an assumption but unless we do that, we cannot complete the heat gain. When the heat gain is completed, then and only then can the actual amount of air to be handled be determined.

For instance let us take the heat gain as illustrated in the Aug. 16 issue. When we arrived at the internal sensible heat, we determined the amount of air. The only point in question in arriving at this amount of air is the D.T.D. to be used. We used 17° D.T.D. and was found as follows:

The room design d.b. temperature is 80° F.

The room design d.p. temperature is 60° F.

As the air entering the room must be the same or higher than the dew-point temperature of the room, and that the d.b. temperature of the air leaving the cooling coils is 60° F. then if no losses occurred between coils and room, the air temperature entering room would be 60° F. d.b.

In such cases the D.T.D. would be 80° F. d.b. minus 60° F. d.b. or 20° F. But in all cases there is a loss between the coils and the room and this is assumed as 3° F. which consists of the heat pick-up from the fan motor and the ducts. So that the approximate D.T.D. as used is 20° — 3° or 17° F. The approximate amount of air came out to 9,350 c.f.m.

Now by allowing 1 hp. for each 3,000 c.f.m. at 1.0 in. wg. static pressure (that is where most of these systems will operate) then the size of the motor driving the fan will be 3.1 hp. This horsepower is used in

the heat gain. The duct heat gain is also figured at this time, and by adding the two we have the fan and duct heat gain.

After the heat gain has been completed we go back and check whether this 3° is high or low and make proper corrections.

While the actual amount of air is determined from the internal sensible heat, the D.T.D. to be used is affected by the internal latent heat to be removed. This allows the highest D.T.D. possible to be used and will provide the smallest amount of air.

The three factors to be considered for this correction are taken from the heat gain and are as follows:

1. The internal sensible heat. (D) 172,014 B.t.u.
2. Fan motor and duct heat gain. (E) 16,490 B.t.u.
3. The internal latent heat. (I) 33,840 B.t.u.

To find the corrected D.T.D. we proceed as follows:

(a) Find what the percentage (%) of the internal latent heat is to the sum of the internal sensible heat and the fan motor and duct heat gain.

33,840 B.t.u.

= 18.0%

172,014 B.t.u. — 16,490 B.t.u.

(b) Determine the difference between the d.b. and d.p. temperatures of the inside design conditions. In this case it is 80° — 60° or 20°.

By applying the 18% and the 20° to the D.T.D. Chart, which was published in the Sept. 1, 1947, issue of the NEWS, gives us the corrected D.T.D. of 18.5°.

Then the corrected air volume is:

172,014 B.t.u. = 8,600 c.f.m.

1.08 x 18.5
The use of the correct D.T.D. is

Fig. 1—How to Determine the Corrected D.T.D.

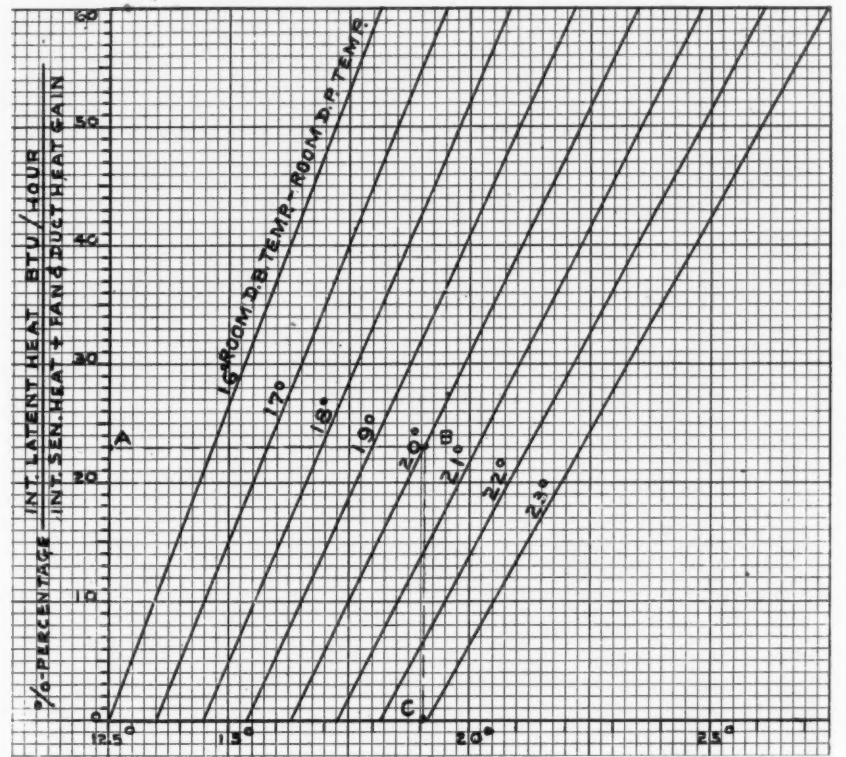


Fig. 1—This chart can be used to determine the desired D.T.D. (differential temperature difference between the room dry bulb temperature which is to be maintained and the temperature of air entering the room needed to maintain that desired temperature).

very important as this will provide the correct amount of air. In most cases the air conditioning engineer uses too much air, and of course this means larger fan, ducts, coils, grilles, etc. which also means a higher first

cost. If the air is kept at the correct amount the cost of the system will always be competitive, and also giving the client the most for his money.

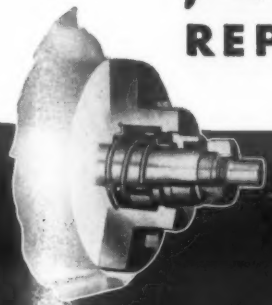
JAMES J. LASALVIA

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TWO COMPLETE LINES that put you in an excellent competitive position. Lipman machines are available in 1/4 thru 40-hp. capacities — air and water cooled — ammonia, freon-12 and methyl chloride refrigerants. The GR line includes range of self-contained and remote air conditioning units for commercial requirements.

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SALES HELPS consist of stepped-up national advertising to consumer markets . . . useful sales literature . . . direct mail pieces . . . local newspaper and radio campaigns you can tailor to fit your needs . . . engineering service to help you . . . real cooperation right down the line!

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Division, YATES-AMERICAN MACHINE CO.
Dept. AR7, Beloit, Wisconsin

Please rush me more information on the Lipman and GR lines, as outlined above.

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Beloit, Wisconsin

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with **AP** **DEPENDABLE**
Refrigeration Valves

Enjoy New
trouble-free
water control
on your water-cooled compressors

New **AP** Model 65 Water Regulating Valve
"wipes itself clean" at every cycle . . .

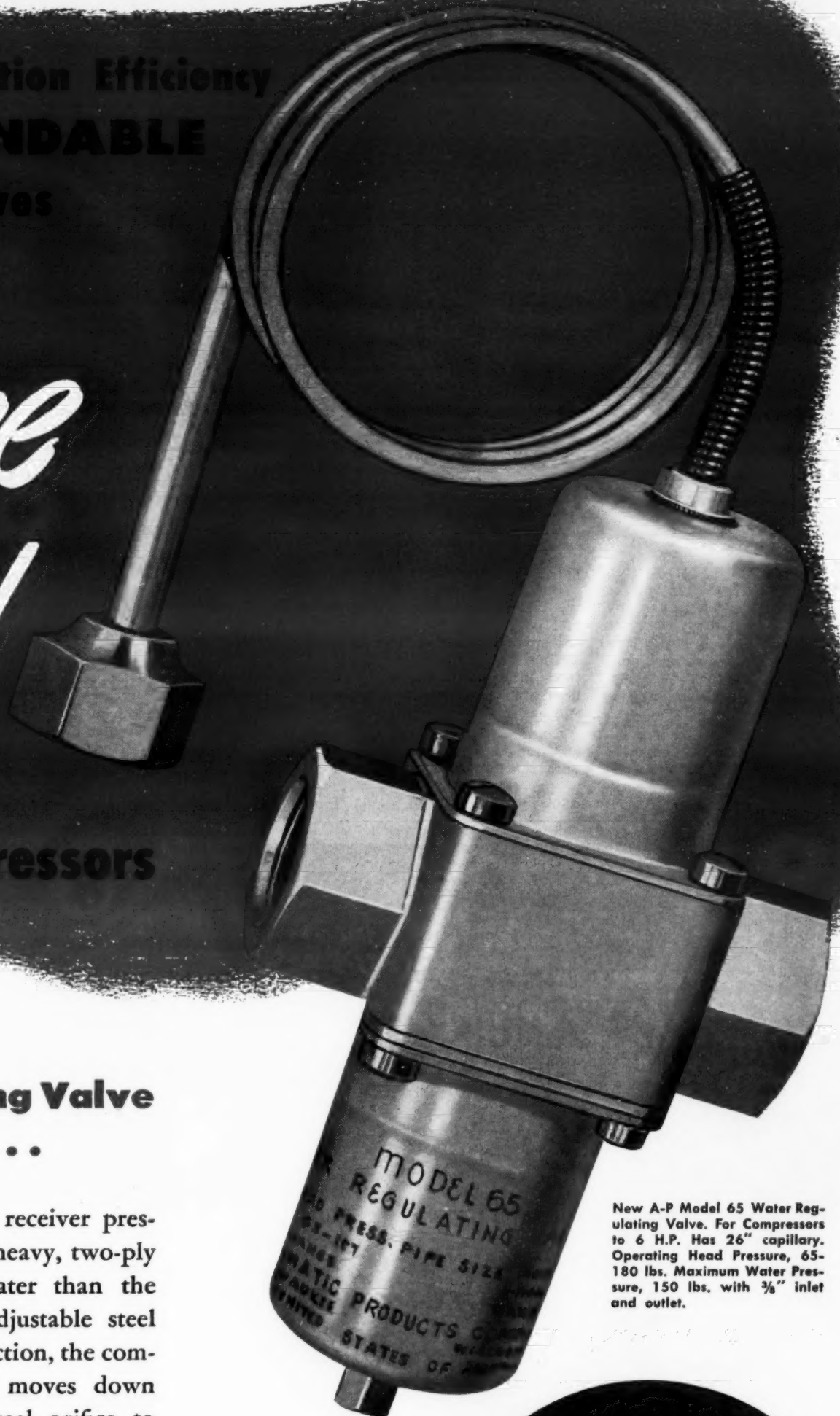
Here's a new idea in accurate, positive, economical, water-flow control for your water-cooled condensing units...a self-cleaning valve that just can't be stopped by dirtiest water. Dirt, lime, scale and other impurities are simply wiped off the stainless steel orifice every time the sliding plastic seat moves. Avoids all common troubles due to dirt and impurities in cooling water.

But this self-cleaning advantage is only *one* important feature of the new A-P Model 65 Water Regulating Valve! It's more compact—only $4\frac{11}{16}" \times 2\frac{1}{2}" \times 1\frac{1}{2}"$ — for easier installation in less space. It's simple to adjust to the system by means of the adjusting stem at the bottom.

The Model 65 operating principle is extremely effective and depend-

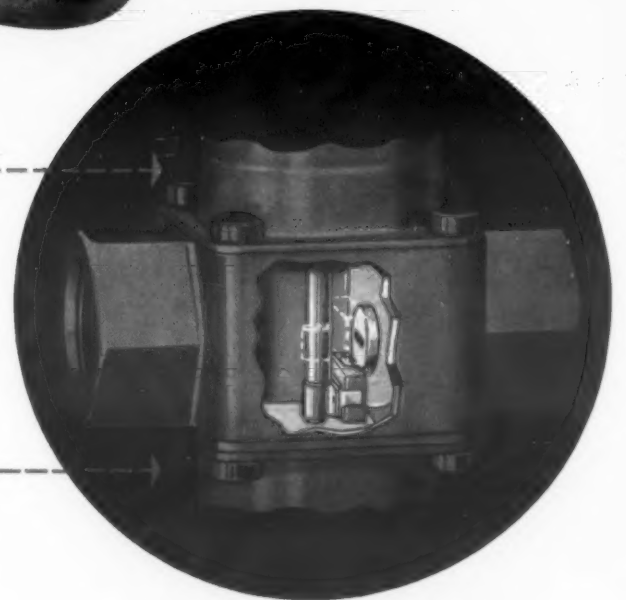
able. When head or receiver pressure exerted on the heavy, two-ply brass bellows is greater than the preset force of the adjustable steel spring in the lower section, the composition valve slide moves down across the stainless steel orifice to release the water flow. As pressure drops, valve moves to the closed position. Special hydraulic O-ring seals prevent water leaking into spring and bellows domes, and all parts contacting water are corrosion-proof for long-life service.

Use the new A-P Model 65 on all water-cooled compressors up to 6 H. P. size . . . for trouble-free water regulation and customer satisfaction. Stocked now at all good Refrigeration Equipment Wholesalers. See the Model 65 at your Wholesaler or write for bulletins.



New A-P Model 65 Water Regulating Valve. For Compressors to 6 H.P. Has 26" capillary. Operating Head Pressure, 65-180 lbs. Maximum Water Pressure, 150 lbs. with $\frac{3}{8}"$ inlet and outlet.

Cross section shows "self-cleaning" action. Sliding plastic seat wipes orifice clean at each cycle.



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Northwest Airlines Freezes 2,000 Meals Weekly; Reports Large Cut In Food Costs



An NWA packer places one of the food trays into the tunnel, which freezes at the rate of 150 lbs. an hour.

Above is the storage space capable of keeping 100,000 dinners at zero degrees. Here meals await shipment to distribution points.

Photos courtesy Minneapolis Sunday Tribune

ST. PAUL—A pioneering step in plus service to passengers flying to the Far East has been taken by Northwest Airlines, which is now freezing complete meals in its kitchen at Wold-Chamberlain Field here for use aboard planes.

Using refrigeration to preserve food carried on the Orient flight—through Canada, Alaska, down the Aleutian Island chain, and thence to the Far East—was first adopted by NWA when it contracted with commercial frozen food concerns to provide the necessary frozen meals.

But now, through extensive experimentation conducted by NWA's staff of food supervisors headed by Harold Houston, director of food service, the airline has installed its own frozen food kitchen. It is said to be the first airline in the United States to successfully undertake such a project.

Completed last summer, the kitchen is specially designed and outfitted with the most modern equipment for preparing, freezing, and storing the dinners. Home grown foods from the

northern states are cooked on electric ranges and then are placed into food forms. These forms are loaded on carts and wheeled into the -15° F. blast tunnel.

The tunnel, made by the Armstrong Cork Co. and equipped for refrigeration by the Gartner Refrigeration Co., Minneapolis, has a capacity of 84,000 meals and is capable of freezing 150 lbs. of food an hour for an 8-hour period. Some 2,000 dinners are frozen in it each week.

After the food is frozen it is assem-

bled into individual servings and placed in plastic, heat sealed packages. These packages are placed on shelves of a low-temperature walk-in cooler held at 0° F. The walk-in will hold 100,000 packages at one time. The packages are held in the cooler until ready for shipment to distribution points at Anchorage, Alaska; Tokyo, Japan; and Manila, Philippine Islands; or are loaded on Orient flight planes.

The "in flight" dinners are carried on the plane in an insulated metal container packed with dry ice to keep them frozen until mealtime rolls around.

In this manner, NWA is able to rapidly serve thousands of dinners weekly with facilities to step up the output as the need demands.

HAS EXPERIMENTAL KITCHEN

The airline has an experimental kitchen where the supervisory staff tries out new combinations of food to give the flying diner an even better selection of meals. On the shelves of the storage cooler are some of these meals placed there to determine their shelf-life.

Northwest found through experimentation that their dinners can be held on the shelves of the zero walk-in from six months to one year with no detrimental effects. However, all of the airline's meals are dated to insure a complete turnover and they are moved within a few months.

The sharp-freezing tunnel has 8 in. of cork insulation designed to keep temperatures at -15° F. It is equipped with two Marlo vapo-defrost refrigeration coils connected to a 5-hp. Frick "Freon" unit.

This unit is equipped with a time clock for electrical defrosting, a feature of the entire system. Defrosting may be varied from one to eight periods daily. However, George Gartner said that at present one period has been found adequate.

The tunnel interior dimensions are 4½ ft. in width by 10¼ ft. in length by 7½ ft. in height. The compartment in which the actual freezing is done is 3 ft. wide by 5 ft. 2 in. high by 10¼ ft. long. A high velocity of air is furnished by four fans equipped with two 1-hp. motors in the upper chamber.

TUNNEL CAN BE EXPANDED

The tunnel is so equipped that it is possible to make it a two-stage tunnel for additional capacity whenever the occasion demands expansion of storage space for NWA foods. The control system is interlocked so that two-stage unit may be set on a single thermostat control.

The low-temperature walk-in cooler, also installed by Gartner measures 36 ft. long by 13 ft. wide by 7 ft. high. It is equipped with a Bush 180 electric defrost coil and a 3-hp. Frick "Freon" unit.

The electric defrost mechanism is automatically controlled by a time clock with a four-phase change daily. An alarm system is set to ring a bell and light a light if the temperature rises to 10° F. and remains there for 30 minutes to an hour. It is located in the air stream of the refrigeration coil.

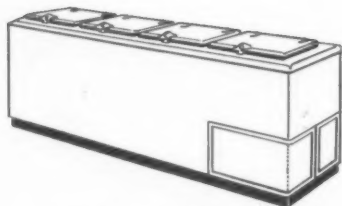
A third refrigeration unit installed by Gartner is an 8-ft. by 8-ft. by 10-ft. Weber normal temperature walk-in cooler for vegetables. This cooler is maintained at 35° F.

Both walk-ins are ironclad in and out with galvanized steel exteriors. The refrigeration equipment and storage rooms are believed to be valued at close to \$12,000.

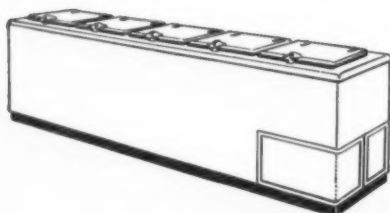
An NWA official stated that although that airline pioneered in frozen food preparation, TWA at present is using a similar setup and has cut food costs as much as 48%. Northwest reported a large food cost cut, but as yet has not computed exact figures.

Sell Food BTC Freezer and You Sell QUICK Freezing

Model FC-12-1
12½ Cubic Feet



Model FC-18-1
18 Cubic Feet



Model FC-23-1
23 Cubic Feet

Potential customers for food freezers want to freeze their own fresh fruits, vegetables, and meats. You can't honestly offer a single-lid box as a Food Freezer; and you can't sell quick freezing with a cold storage box.

BTC Food Freezers are true, quick freezers with a separate sharp-freeze section that freezes up to 75 pounds of meat at one time — automatically on plate contact. A freezing load up to 120 pounds can be handled by a BTC Food Freezer every twenty-four hours without affecting the zero temperature storage.

Quick freeze new foods and maintain frozen foods at sub-zero temperature — that's the way to sell food freezers. BTC Food Freezers have all the features to help you do a better selling job. Take this opportunity now to join the experienced dealers who have the advantages of the profitable BTC franchise. Write today for full information.

THE BREWER-TITCHENER CORPORATION
BINGHAMTON, N. Y.

Ready-to-Ship Dinners



Photo courtesy Minneapolis Sunday Tribune

Harold Houston, director of Northwest's food service, checks frozen dinners packed with dry ice in a specially built, insulated container in which the airlines meals are shipped.

Announcement

Refrigeration Contractors are the logical ones to sell, install and service equipment required to refrigerate George-Ann Warm Room Lockers and Walk-in Boxes.

We invite them to cooperate with our agents (openings for which are still available) who are especially trained in locker financing and operation, meat cutting, processing and merchandising, as well as in grocery store and locker plant layouts.

All inquiries will be promptly handled.

WRITE:

GEORGE-ANN COMPANY 321 HIGHLAND DRIVE
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DEALERS: Here is an immediate delivery ice cube maker that will almost sell itself on the economy angle alone. Advertisement below is one of a series your prospects will be reading in national publications. We furnish complete literature to help you sell. Ask about territories now open.

SAVE UP TO 90%
on
ICE CUBE COSTS



Northwest
ICE CUBE MAKER

Saves Money—average cost per bushel (400 cubes) is 7c. What do you pay?
Freezes Faster—2 to 5 freezes per day varies with humidity and temperature conditions.
Cuts Shrinkage—special cabinet design maintains sub-zero cold in storage compartment even when door is open.
Freezes Colder—sub-zero cubes mean colder beverages, more economy because cubes last longer in drinks.

ICE CUBES *Unlimited*
with **TANDEM**
INSTALLATIONS

No limit to ice cube production with Northwest. We plan a multiple installation to occupy minimum floor space.

FOR INSTITUTIONS
requiring uninterrupted twenty-four hour service.

FOR BARS AND CLUBS
fits under any standard bar—economical, time-saving.

FOR RESTAURANTS
no cold loss despite frequent opening of cabinet.

FOR HOTELS
supplies continual demand for room service and dining rooms.

1949 MODELS
Immediate Delivery
JUNIOR SERIES—210 cubes each freeze 1½ bu. storage (600 cubes)
SENIOR SERIES—336 cubes each freeze 3 bu. storage (1,200 cubes)
JUNO SERIES—Junior with 3 bu. storage Senior with 5 bu. storage
*Self contained or remote compressors

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RICHARD C. HODGES, Mgr.

Survey of Independent Retail Meat Dealers Indicates That over 60% Own Commercial Equipment 8 Years Old

ST. LOUIS—More than 60% of the refrigerated display cases, closed type frozen food cases, reach-in refrigerators, and condensing units owned by readers of *Meat Merchandising* magazine (mostly independent retail meat dealers) are eight years old or older, a survey which was conducted by that publication determined recently.

Meat Merchandising noted that 41% of the refrigerated display and storage equipment used by its readers is refrigerated from remote condensing units.

It also reported that 1,912 of the stores covered planned to add air conditioning, 3,319 planned to add

locker plants, and 6,186 planned to add low temperature walk-in and reach-in boxes.

On the age of the various types of refrigerated equipment, it was found that readers owned 1,057,312 lineal ft. of standard closed top and double duty display cases. Of this footage 502,262 ft. were 10 years old or more, 93,043 ft. were nine years old, 86,699 ft. were eight years old, and 377,108 ft. were seven years old or less.

Readers owned 168,720 lineal ft. of closed type frozen food cases and of this 70,862 ft. were 10 years old or more, 10,123 ft. were nine years old, 11,810 ft. were eight years old,

and 75,925 ft. were seven years old or less.

They also possessed 19,121 reach-in refrigerators of which 8,987 were 10 years old or older, 1,721 were nine years old, 1,338 were eight years old, and 7,075 were seven years old or less.

They were using 134,965 condensing units—an average of 2.4 per store. Of these, 76,936 were 10 years old or older, 10,798 were nine years old, 9,448 were eight years old, and 37,794 were seven years old or less.

Self-service and refrigerated reach-ins for dairy, produce, and beverage storage and open type frozen food cases were not considered.

R. C. Osborn Elected Vice President of Engineering At Eureka Williams Corp.

BLOOMINGTON, Ill.—R. C. Osborn, chief engineer for the Eureka Williams Corp. since December, 1947, has been raised to the status of vice president in charge of engineering, it was announced recently by H. W. Burritt, president.



Before coming with the Eureka Williams Corp. in September, 1945, as chief engineer of the Eureka division, Osborn was an engineer with the Hoover Co., manufacturer of vacuum cleaners, and for a time served as director of engineering for the Tobe Deuschmann Corp. of Canton, Mass.

During the war he played an important part in the development of the now famous radio proximity fuse and received a Naval Ordnance development award for his outstanding work.

Osborn is in charge of research and development for the complete Eureka Williams line of Eureka home cleaning equipment, Oil-O-Matic oil burners, furnaces and boilers, and the Dispos-O-Matic garbage disposal unit.

Kramer Trenton Names Corbin Representative In Parts of 4 States

TRENTON, N. J.—M. E. "Joe" Corbin has been appointed to represent the Kramer Trenton Co. in the territory covered by Ohio, West Virginia, western Pennsylvania, and western Michigan, the company has announced.



Corbin will handle the Kramer line exclusively, the company said. His headquarters will be set up in Cleveland, but temporary headquarters are now in Lakewood, Ohio.

Corbin has previously been connected with Carrier Corp. and the General Electric Co. During the war, he held a commission in the navy and worked on standardization of refrigeration equipment, the company related.

New Brick Building To House Service Firm In Memphis, Tenn.

MEMPHIS, Tenn.—The Owens Radio & Refrigerator Service here, owned by E. L. Owens, is constructing a new brick building at 3326 Summer St. The firm is now located at 1367 Madison St.

Costello Refrigeration Files Name To Operate In Kenmore

BUFFALO—A business name has been filed in the county clerk's office for the Costello Refrigeration Service, 371 Washington St., Kenmore, N. Y., by John M. Costello.

Distributor's Warehouse Built To Handle Carload Shipments

PITTSBURGH—The Egerman Store Fixture Co. here, distributor of Super-Cold equipment in the Pittsburgh area, has built its own warehouse to store carload shipments, R. J. Egerman has announced. The warehouse is located at 2722 Penn Ave.

Williamson Owns Dexter Service

BURNABY, B. C.—Frederick L. Williamson has filed declaration of his partnership in and ownership of the Dexter Refrigeration Service Agencies here.

'Cold Rubber' Tires Reach Production on Small Scale

LOS ANGELES—A new synthetic tire made from "cold" rubber that will give 30% more mileage than natural rubber has been developed and is currently being produced on a small scale, Herbert E. Smith, president of the U. S. Rubber Co., announced recently.

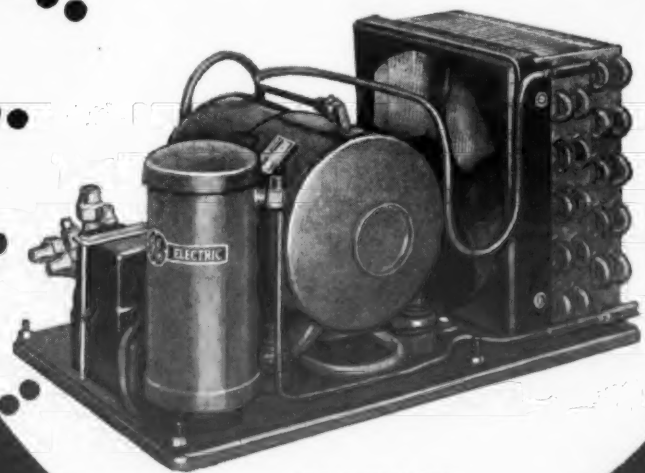
He asserted that the new tire is the "greatest find since balloon tires." He explained that a refrigeration process rather than heat is used to produce the tires from synthetic rubber.

Production can be stepped up as soon as allocation restrictions permit, Smith also asserted.

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G-E HERMETIC

for any refrigerated cabinet



The heart of fine refrigerating equipment

When you want quality refrigerating equipment... built to last for years of dependable operation... designed to give efficient, economical service... make sure its "heart" is a new G-E sealed condensing unit.

In the line of 32 G-E hermetics there is a unit for practically any cabinet you need. G-E hermetics are built in sizes from 1/8 to 1/2 hp... covering the entire suction range down to -30 degrees F. This new line embodies General Electric's 37 years of experience in the sealed unit field. You'll find these hermetics give high refrigeration per kilowatt hour of electricity... they stand up in heavy service... require minimum maintenance.

Every one of these units is General Electric throughout—that means G-E designed, G-E built, G-E tested. This centralized responsibility adds up to greater satisfaction from cabinets equipped with G-E hermetics. In addition, General Electric's national replacement policy will make servicing quick and easy.

Get full information on this outstanding new line of hermetics and you won't settle for less. *General Electric Company, Air Conditioning Department, Section R87012, Bloomfield, N. J.*

NOTE: G-E hermetics are sold only to manufacturers of refrigerated cabinets.

GENERAL ELECTRIC

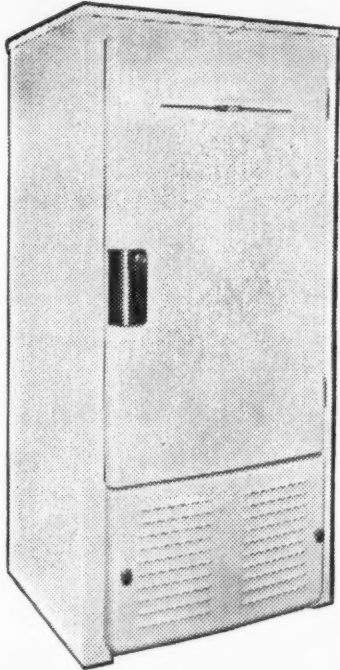
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ICE REFRIGERATORS FOR MORE THAN 40 YEARS
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What's New

Evaporative Condensers Cut Water Need Up to 90%

DAYTON, Ohio—Eight new evaporative condensers, which use both air and water spray, have been announced by Frigidaire Division of General Motors.

By employing forced air and a pressurized water spray instead of the ordinary circulating water system, the new evaporative condensers reduce water consumption as much as 90%, Frigidaire claims.

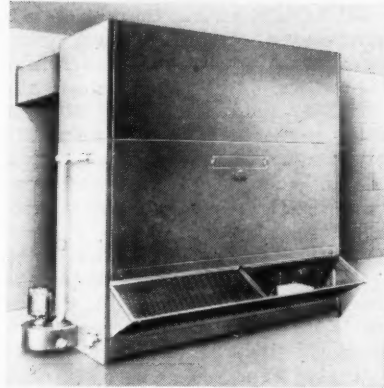
In addition, the models—with refrigerating capacities ranging from two to 50 tons—solve water disposal problems where drainage facilities are limited, cut operating expense, and improve compressor efficiency, according to the manufacturer.

Operation of the new condensers is explained as follows:

"Fans draw air into the unit through an intake grille. At the same time, water is sprayed into the air stream, wetting the surface of the condensing coil, which contains hot refrigerant vapor from the compressor. This vapor is cooled by the joint action of the air and water and is restored to its liquid state, moving on to the cooling unit."

All of the new condensers, with the exception of the small two-ton capacity model, are comprised of three parts, including fan, coil, and base sections.

The fan section is located at the



top and may be arranged for front, rear, or vertical discharge, depending upon requirements. The coil, constructed of either steel or copper, is below the fan.

The base section is constructed of heavy welded steel with rust-resistant finish. Located at the top of the base section is the air intake grille.

The receiver is also located in this section, surrounded by sump water, and has inlet and outlet shut-off valves so the system can be pumped-down without losing refrigerant.

The two-ton condenser, smallest in the new line, has a welded-steel casing with a rust-resisting finish. It is equipped with a 2-in. lip for optional installation of a short duct. The coil is copper tubing with brass fins. Two removable brass nozzles provide a fine mist-spray, automatically controlled by an adjustable valve.

In addition, this condenser may be converted into an air-cooled unit for cool weather operation. It may be installed in or near a window or outside if protected. Multiple installation is possible when additional capacity is required.

All coils used in the new line are the primary surface-type and are reportedly easy to service and clean. For example, front, inner, and outer protective panels of the coil section can be removed to reach spray nozzles and the coil, itself.

Blowers are die-formed and equipped with multi-bladed fans. A jack-screw attachment on motor mountings permits simple belt adjustment.

An open-impeller, vertical type water pump, completely submerged in water, is employed. The impeller is mounted on an extended ball-bearing motor shaft. The motor is a 1/4-hp. unit on 10, 15, 20, and 25-ton units and 1/2-hp. from 30 tons on up.

Spray nozzles are constructed of bronze and are of the low-pressure, hollow-cone type. They can be cleaned by removing the front panel. A spray baffle dissipates all moisture as it passes into the fan section.

'Alodine' Coating Reduces Aluminum Treating Time

AMBLER, Pa.—"Alodine," a new surface treating chemical for aluminum which is said to produce a protective coating in an extremely short time, usually 2 minutes or less, has been developed by American Chemical Paint Co.

This chemical can be applied by dipping, spraying (in a power washer), or brushing the aluminum parts.

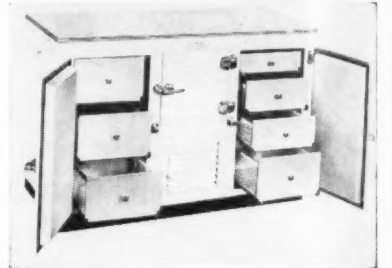
"Dipping the parts into a tank containing the Alodine bath, for example, requires but two minutes for the formation of an effective coating," the company said. "Spraying the work in power spray washer equipment reduces this short time still further so that an excellent coating, iridescent in color, forms in about 20 seconds. When the Alodine chemicals are brushed on large surfaces—aircraft, tanks, etc.—the coating time ranges from one to five minutes.

'Emergency Fireman' Is For Inexperienced Users

MARINETTE, Wis.—A dry chemical fire extinguisher containing 2 lbs. of Ansul Plus-Fifty dry chemical has been designed for effective use by inexperienced operators to provide maximum protection from flammable liquid and electrical fires. It is rechargeable on the spot after use.

The dry chemical in the "Emergency Fireman" is non-toxic, a non-conductor of electricity, non-corrosive, and non-abrasive. It will not deteriorate, solidify, or evaporate and therefore does not require periodic recharging, the company said.

The fill cap on the Emergency Fireman is built into the mounting bracket. This makes the extinguisher ready for instant use the moment it is removed from the mounting.



Dillon-Lilley Introduces Biological Refrigerator

ST. PAUL—A 15-cu. ft. biological refrigerator, designed specifically for the storage of drugs and serums, has been introduced by the Dillon-Lilley Co., Inc. here.

The unit, called the model 500 (Deluxe), maintains a constant 38° F. with outside temperatures as high as 110° F., thus achieving storage of biologicals without loss of potency, the company claims.

A blower equalizes and maintains the desired 38° F. throughout the unit. Seven drawers of varying sizes are constructed of expanded metal sides allowing cold air to circulate freely, the company said. They can be pulled to full length, fully loaded, and are arranged so that various drug items can be easily classified and kept within reach.

Made of white enamel heavy gauge steel and insulated with fiber glass, the unit has an electrically operated moisture eliminator. It is powered by a hermetically sealed condensing unit.

The refrigerator stands 36 in. high and has a utility work top.

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With the HUDSON Constant Pressure CARBONATOR Only 99.00 complete IMMEDIATE DELIVERY FROM STOCK

May be installed in any sweet water bath, bottle cooler, walk-in box, or in conjunction with Temprite or any other cooling system. When properly installed this unit produces a quality soda water which is unexcelled.

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ONE MORE REASON WHY FIBERGLAS* INSULATION IS "A SWELL FEATURE TO HAVE... A SWELL FEATURE TO SELL"

This advertisement, in full color, appears in TIME Magazine, November 1st issue, going to more than 1,500,000 of America's "buyingest" families. It is part of a new series designed to create even greater acceptance for Fiberglas Insulation as a selling feature in your appliances.



You can't see what keeps it cold!

The questions children will ask! And any parent will have to admit, they're often good ones. You can see what makes a refrigerator cold—motor, compressor, coils. But you can't see what helps keep it cold—the Fiberglas* insulation.

Makers use many varieties of motors, cooling systems and styles, but the brands of refrigerators that you know best have the same insulation—Fiberglas.

When leading manufacturers agree on any one item, that is evidence of its superiority. Fiberglas has a combination of qualities no other material has. This fluffy, resilient insulation does not settle, a fault which would leave uninsulated areas at the top of the refrigerator walls through which heat

would penetrate. Then again, it does not pick up moisture and cannot rot, feed vermin or become odoriferous.

Of course, keeping heat out requires the same efficiency as keeping heat in. That is why leading manufacturers of ranges, water heaters and roasters insulate with Fiberglas, too. As a specific example, the effectiveness of Fiberglas insulation is demonstrated in the fact that one of the most prominent range manufacturers credits Fiberglas with holding in so much of the oven's heat that 75 per cent of the work is done without current. For complete information, write to Owens-Corning Fiberglas Corporation, Dept. 50RP, Toledo 1, Ohio. Branch offices in principal cities.

In Canada: Fiberglas Canada Ltd., Toronto, Ontario

*Fiberglas is the trade-mark (Reg. U. S. Pat. Off.) of Owens-Corning Fiberglas Corporation for a variety of products made of or with glass fibers.

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FIBERS OF FINE GLASS ARE ANGLELESS, FLEXIBLE



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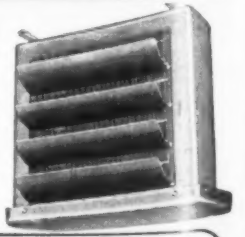
AS DOWN

FASHIONED FOR FUNCTIONING

Even the handsome, engineered good looks of Larkin refrigeration products contribute to their fine performance. The originator of the Cross Fin Coil also offers you matchless quality in Air Conditioning Units—Evaporative Condensers—Instantaneous Water Coolers—Humi-Temp Forced Convection Units—Bare Tube and Zinc Fused Steel Plate Coils—and complete equipment for commercial and industrial refrigeration.



THE WATCH DOG OF THE NATION'S FOOD SUPPLY



LARKIN COILS 519 MEMORIAL DRIVE • S.E. ATLANTA • GEORGIA

What's New (Cont.)

Automatic Filter Cleaner Fits onto Dust Collector



ANN ARBOR, Mich.—An entirely self-contained automatic filter cleaner unit for use in connection with its standard model 1150 Dustkop dust collectors, which is designed to maintain initial suction, reduce filter replacement, and eliminate manual filter shakedown is announced by Agat-Detroit Co., 472 Main St. here.

On certain extreme heavy-duty buffing operations the automatic self-cleaner removes lint by suction from the inner surface of the filter and sends it through the cyclone where lint is taken out of the air stream.

The automatic self-cleaning mechanism consists of a semi-circular filter of non-inflammable spun glass and a motor driven nozzle which is enclosed within the assembly to reciprocate continuously over the inner surface of the filter.

The nozzle is connected by means of a flexible fabric hose, to the inlet of the Dustkop. This provides the suction for the nozzle and at the same time establishes a re-entry to the cyclone for the lint.

The extra connection at the inlet for the nozzle does not cause any measurable decrease in the amount of suction available for the wheel hoods.

Installation of the automatic filter cleaner, which can be used with either existing or new model 1150 Dustkops, consists simply of removing the old filter assembly and placing the new automatic filter cleaner in position.

Connection to the electrical starting circuit of the Dustkop and connecting the flexible re-entry hose to the new inlet supplied, completes the installation.

A fractional horsepower motor with reduction drive is connected with a crank arm and the latter to the piping, terminating in the nozzle.

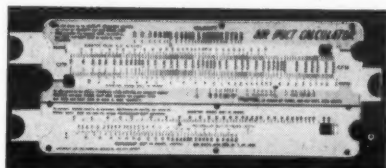
4-Cu. Ft. Refrigerator Has Wide Freezer Section

VENICE, Calif.—Associated Pacific here has announced that it is now manufacturing a new 4-cu. ft. domestic refrigerator incorporating a full-width freezer compartment.

Called the "Aristocrat," the refrigerator is 41½ in. high, 23 in. wide, and 18½ in. deep (21½ in. with flue). It is powered by a ½-hp. Tecumseh hermetically-sealed condensing unit.

The freezer compartment is said to hold up to 18 lbs. of frozen foods or 189 ice cubes in nine trays. The refrigerator comes equipped with two standard ice cube trays and a combination defrost-utility dish.

Other listed features are aluminum cabinet, white baked enamel finish, corner-free interior, nine position control, and Fiberglas insulation. Associated Pacific also stressed that the Aristocrat "is designed with attractive modern lines found in the larger household refrigerators."



Sliding Scale Aids Air Cooling Duct Estimation

DETROIT—Claimed to offer the air conditioning engineer a quick and simple means of calculating sizes of ductwork, an "Air Duct Calculator" has been introduced by the Thomas M. Jackson Co. here.

Three sliding scales on the front of the heavy bristol board calculator permit sizing of ducts by the Velocity Reduction method or by the Equal Pressure Loss Method, in addition to converting round ducts to equivalent rectangular ducts.

Back of the calculator has two sliding scales for quickly figuring the weight of galvanized iron ducts per lineal feet of run in gauges of 16 to 26 in either round or rectangular ducts.

Tables on the back of the calculator also give recommended and maximum air velocities for various parts of air conditioning systems in schools, residences, public and industrial buildings; friction loss of 1½ in. radius elbows at various velocities and c.f.m.'s is given, too, along with recommended gauge thicknesses for metal duct in various sizes.

In using the calculator to size ducts by, say the Velocity Reduction method, the arrow on the sliding "A" (top) scale is set at the velocity figure. Then the figure opposite the required c.f.m. figure will be the diameter in inches of the required round duct.

Setting the sliding "B" scale so that the selected round duct diameter in inches lines up with the required c.f.m. will indicate the friction in inches of water per 100 ft. with joints.

3 New Vegetable Cases Shown by Coldin Cabinet

NEW YORK CITY—Three new refrigerated vegetable cases for 1949 have been introduced by the Coldin Cabinet Co. here.

The three units are made in 6, 8, and 10-cu. ft. capacities. They feature all-porcelain interiors, corrosion-proofed pleated wire shelving, double glazed hard rubber sliding doors in the top section, hinged doors on the bottom storage compartment, and coils engineered to maintain a high humidity.

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genuine

Marlo

products

MARLO-HEAT TRANSFER
Since 1925

... for extra protection against leakage

IMPERIAL Triple-Seal FITTINGS

... The Flare Fitting with the groove in the seat

When the flare is drawn against this groove the copper tubing is extruded into the groove making a tight, self-sealing joint. Here is the joint that remains leakproof even though the face of the seat may be nicked or marred. This extra seal of safety is a plus feature that costs no more. Included in all sizes ½" and larger.

THE IMPERIAL BRASS MANUFACTURING COMPANY
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Ranco Controls—for Household Refrigeration

For the dependable, trouble-free service you need and want for your household refrigeration products, check first with Ranco. The complete Ranco line of Refrigeration Controls includes a type and model designed to meet your specific requirements.

From raw materials to finished product, Ranco's experienced refrigeration specialists control every step in the production of these precision-built controls. Quality materials, selected and tested, are carefully machined and assembled by skilled craftsmen... rigid inspections and tests insure accurate, positive operation under the most exacting conditions. Over 15,000,000 Ranco Controls now in use attest the satisfactory, economical performance you can expect when you check with Ranco first.

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Ranco Inc.
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World's Largest Manufacturers of REFRIGERATION CONTROLS

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EXTRUDED ALUMINUM REFRIGERATOR TRIM
MOULDINGS AND HARDWARE

to fit YOUR Specifications!

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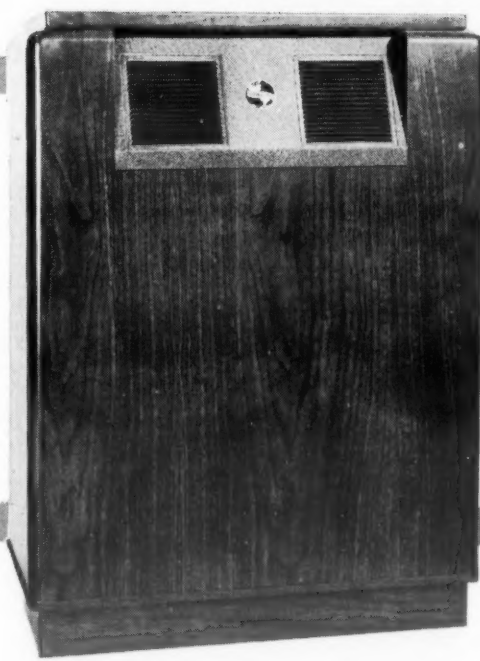
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A few Territories Left? Right! Refrigerated AIR CONDITIONING Installed WITHOUT "Wrecking the Place"

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Territory
May Still
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Now!



Special PRICES

Distributor franchise available upon signed contract of 25 units or more.

Distributor price—one to nine units \$181.72
Ten to twenty-four 172.53
Twenty-five up 168.03

Dealer prices—One to four 227.15
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Ten to fifteen 210.11
Sixteen and up 204.49

All prices F.O.B. Oklahoma City
Condensing Units extra

SPECIFICATIONS Spelling S-A-L-E-S!

★ COMPACT, 27" High, 22" wide, 10" deep
★ CAPACITY, 2 rotary blowers, 12,000 BTU per Hour ★ REFRIGERATED with Freon
★ FILTERS and Dehumidifies ★ ENGINEERED to "Nth" degree, all Aluminum Case and all Copper Coils. ★ SMART Walnut or Blond Mahogany finish.
★ MODERN CONTROLS Expansion Valve, Solenoid and Thermostat for TRIPLE Control ★ ADAPTABILITY, Compressor to Unit copper tubing is easy to install, easy to move. Apt's. or Hotels can offer CHOICE of Air-conditioning, Lessees can install and move units without losing equity.

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Manufacturers of All Copper Refrigerant Coils from 1 to 20 tons which, when installed in existing ductwork of any central heating system, will provide refrigerated air conditioning.



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AIR
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Plant: 4028 N. Barnes

INTERNATIONAL—Has a lower initial cost and installs for 25% to 40% less. No expensive alterations of walls or masonry, operates anywhere in the room. INTERNATIONAL Cools and dehumidifies from any location in a home, tourist court, office, hospital, hotel. The compressor, (extra) can be placed in basement, attic or closet, connect with flexible, inexpensive copper tubing. Increasing Compressor capacity makes large commercial sales easy! ALL the advantages of a single unit system without blocking windows, winter removal or compressor noise and heat. Fully Automatic, triple thermostatic control, INTERNATIONAL is THE Profit line for '49—No "wrecking" installations, inexpensive, effective, flexible, modern, smart! This same system, using chilled and hot water instead of Freon, will provide year round temperature control. Order now—WRITE...

The KEY to AIR CONDITIONING

One of a series from

by James J. LaSalvia

Readers who have any questions regarding the application of air conditioning are invited to write to Mr. LaSalvia, the author of this series, who will be pleased to furnish a complete and detailed answer free of charge. This is another of the services provided by the NEWS.

Evaporative Condensers

In many localities throughout the country city water and well water are not available in sufficient quantities for condensing purposes, because of the following reasons:

1. Water costs are excessive, which would cause high operating cost.
2. Water is not available in sufficient quantities.
3. Water may be of poor quality, such as having a large lime content, which would plug up the coils in the condenser.

Under such conditions in order to have an economical operating cost, the use of water saving devices is recommended.

The evaporative condenser (see Figs. 1 and 2) is a water saving device, operating in the same manner as water cooling towers.

The water saving ability of this equipment will average about 95% of the amount of water which would

be used ordinarily by condensers.

The evaporative condenser is really a combination of a water cooling tower and the condensing part of a compressor. A compressor selected for this type of system will not have a condenser as the evaporative condenser will take the place of the conventional condenser.

It is usually located on the roof for best performance but can be placed inside of building and if proper precaution is taken, will operate just as efficiently.

Evaporative condensers may be placed either above or below the direct expansion coils. For better operation it is recommended to place them above the coils.

Evaporative condensers are made in many sizes, the largest being about 50 tons of refrigeration.

The common sizes are 10, 20, 30, 40, and 50 tons. They can be varied

to operate at less or greater capacities by merely varying the amount of air through the unit and also the depth of the condensing coil, by increasing or decreasing the rows deep in the path of the air, or by varying the face area of the condensing coil.

For a system greater than 50 tons, combinations of various sizes are used to meet the greater loads.

Cross-Section Views Show Components of Evaporative Condenser

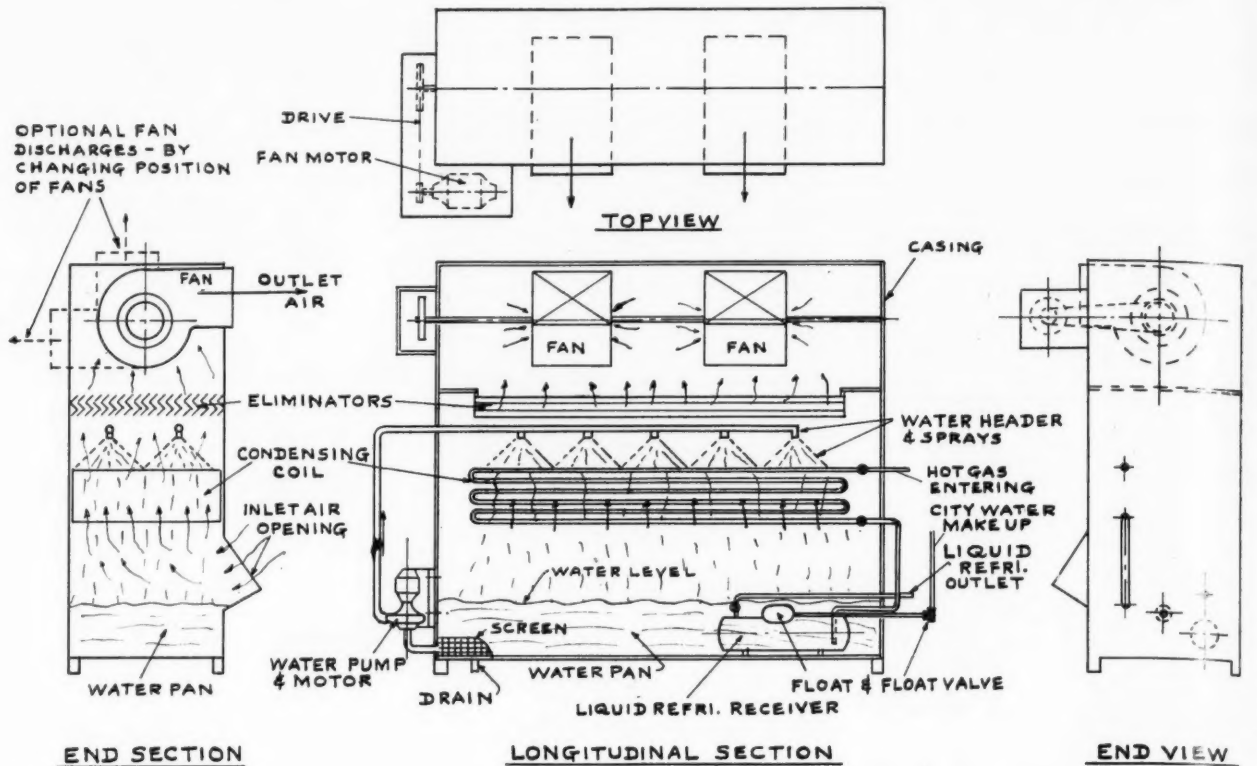


Fig. 2—The various component parts that make up an evaporative condenser such as is used in air conditioning are shown in the above cross-sectional views of a typical unit.

When using more than one compressor, one evaporative condenser should be used for each compressor for best operating results. One evaporative condenser may be used for more than one compressor, but extreme care should be taken in the piping hook up.

COMPONENTS OF EVAPORATIVE CONDENSER

The evaporative condenser is made of the following main parts:

1. Casing.
2. Condensing coil.
3. Fans.
4. Fan motor.
5. Water pump and motor.
6. Water spray header and sprays.
7. Water pan.
8. Float and float valves.
9. Inlet air opening.
10. Eliminators.
11. Outlet air opening.
12. Hot gas inlet to condensing coil.
13. Liquid refrigerant receiver.
14. Liquid refrigerant outlet.
15. City water make up line.
16. Water pan drain.

CASING

Casing is usually made of heavy galvanized gauge steel sheets provided with a protective coating to resist corrosion.

CONDENSING COIL

Condensing coil is made of copper tubing with continuous copper fins to withstand any corrosion.

FANS

Fans are of the double inlet, double width type, placed on the same shaft, if more than one fan is used. The fans may be rotated on the shaft, so discharge can be to either side or vertical.

FAN MOTOR

Fan motor is usually on the outside of casing and drives the fans by means of pulleys and drive belts. When placed outdoors, the motor, drive, and pulleys are usually protected by a galvanized metal hood, to protect them from the weather.

WATER PUMP AND MOTOR

Water pump and motor are located usually on the outside of casing so that the suction of the pump is at the bottom level of the water pan. A protective galvanized metal hood is usually provided to protect it from the weather.

WATER SPRAY HEADERS AND SPRAYS

Water spray headers and sprays are made of brass or copper and are located directly above the condensing coil so that the water is sprayed evenly over the top surface of the condensing coil.

WATER PAN

Water pan is the lowest part of the evaporative condenser and catches all of the water which has been sprayed on the condensing coils. It always holds a certain height of water for proper operation.

FLOAT AND FLOAT VALVE

Float and float valve keep the amount of water in the pan always at the same level. The ball float is in the pan and the float valve is on the city water line. When water in pan

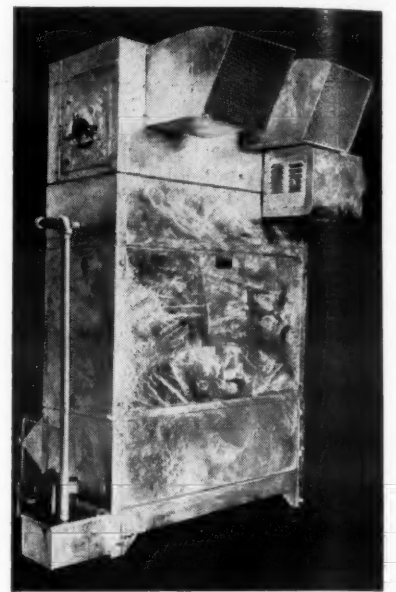


Fig. 1—Typical of evaporative condenser design is this Carrier Corp. model.

drops, the float will open the float valve so that the make-up water enters the pan to bring it to proper level.

INLET AIR OPENING

Inlet air opening is provided at side of unit and is placed between the top of the water level in the pan and the condensing coils.

ELIMINATORS

Eliminators are made of heavy metal steel sheets with protective coating. They are placed above the condensing coils and sprays, to keep the water from being sucked into the fans above.

OUTLET AIR OPENINGS

Outlet air openings are provided at each outlet at discharge of fans and are made of galvanized steel ducts. It is recommended that these openings be on the opposite side of the inlet air opening.

HOT GAS INLET TO CONDENSING COILS

Hot gas inlet to condensing coils is where the hot gas line from the compressor is connected to.

LIQUID REFRIGERANT RECEIVER

Liquid refrigerant receiver is a metal tank located in the water pan. The hot gas which is liquified in the condensing coil, flows to this receiver and is stored here, until it is called for at the cooling coils of the system.

LIQUID REFRIGERANT OUTLET

Liquid refrigerant outlet is the outlet of the liquid refrigerant from the receiver, and from here the refrigerant is taken to the cooling coils.

CITY WATER MAKE-UP LINE

City water make-up line is a water line taken from anywhere in the city water system of the building and connected to the water pan through the float valve for make-up water.

WATER PAN DRAIN

Water pan drain is a piping outlet from the bottom of the water pan to drain all water from the pan when the air conditioning system is shut down for the winter, or for servicing.

(To Be Continued)

COMING UP!

brand new Air Conditioning package units

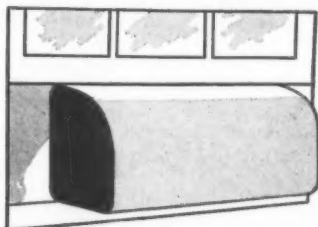


Designed by Mr. "X" of usAIRco

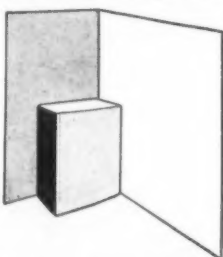
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Air-cooled, refrigerated window unit... simple plug-in installation... no water or sewage lines... one-half ton.



Console type refrigerated room cooler... sizes: three-fourths and one ton. In a few days pictures, specifications, and prices will be available. Write today for pre-view news.

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THE INDUSTRY'S MOST PROGRESSIVE PRODUCER OF SOUND VALUE

UNITED STATES AIR CONDITIONING CORPORATION Como Avenue S.E. at 33rd Minneapolis 14, Minn.

Dealer's Holiday 'Economy Sales' Dispose Of Trade-In Refrigerators at a Profit

40 Specialists Do Reconditioning In Well Equipped Shop

WASHINGTON, D. C.—Trade-in refrigerators, instead of being hastily reconditioned and resold, are "saved up" for periodic "economy sales" under a novel plan developed by George's Radio & Television Co., appliance dealers who operate nine stores in the Washington area.

The firm, which handles four national brand refrigerator lines, has been pursuing one of the most unusual trade-in policies in appliance retailing since 1934, according to Phil Keller, appliance head.

"With so many brands to deal with, we have had the trade-in problem with us from the first" he pointed out.

"Therefore we have recognized the necessity of rebuilding and overhauling every box in order to keep profits clear on the new refrigerators sold. To do this, we have operated for more than 14 years a refrigerator repair shop which includes a complete inventory of all replacement parts, hardware, a paint spray shop for exterior refinishing, test line and other features."

Company salesmen use the slogan "we never refuse a trade-in." Every box, as soon as it is accepted, is picked up by the same delivery truck which brings out the new one, and is hauled to the warehouse, which contains a huge repair shop with 40 specialists in various types of appliance repair.

Here the refrigerator is examined and a work ticket made out on it. It passes into the refrigeration shop, which is air conditioned, sound-proofed, and has its own parts room and spray shop.

Each box is torn down, put into tiptop operating shape, run for 24 hours to check its condition, and then passed into a large storage space to join others similarly reconditioned.

"Piling up" in this way there is always a large stock of rebuilt on hand for the next trade-in sale to be staged by George's.

The trade-in sales are always scheduled to coincide with holidays when plenty of people have time to visit any of George's stores, and are rigidly held to a five hour limit. Typical sales took place during 1948 on Labor Day, Thanksgiving, Washington's Birthday, etc.

To announce each, George's uses huge, eye-pulling newspaper advertisements announcing bargains in completely reconditioned, guaranteed home appliances, but warns the public that the sale will be open only from 9 a.m. until 2 p.m.

All the accumulated refrigerators are brought out of the warehouse storage at this time, and distributed among the nine stores by the 15 service trucks operated by the firm. Prices are set to cover reconditioning and haulage cost, with a small profit where the box has strong value, but at least "breaking even" in every case.

These sales have had a powerful promotional advantage according to Keller. "During the last economy sale we had people lined up for blocks at each store," he declared. "Nearly all were home-owners who couldn't afford new refrigerator prices, and who had anxiously awaited our trade-in sale."

Some of the sales are held at the main downtown George's store, depending upon the amount of appliances on hand, making it necessary to hustle all salespeople from the other eight stores to handle the crowd. More than 1,600 appliances were sold in five hours during the Labor Day promotion.

This unusual policy has drawn plenty of attention in the nation's capital. Frequently customers who have purchased one appliance at a previous sale return for the next one.

Making all this possible, says Keller, is the fact that the service department shows a steady profit. It isn't necessary to turn over every reconditioned box as rapidly as possible.

The company makes a constant drive for service business, and by taking in repair work at all nine stores, is able to keep a 40-man crew busy the year-round.

One of the company's service trucks spends the day rolling from store to store, picking up appliances turned in for repairs and delivering those finished in the shop. This convenient neighborhood service has earned a good reputation for the firm, bringing a lot of new appliance sales which might otherwise have gone elsewhere.

Norge's X-Ray Appliance Presentation



Appliances need hold no secrets for the home-maker who has this sales presentation, which was created for Norge by X-ray Sales Methods, Inc. A series of printed acetate "window" pages take major appliances apart, step-by-step to expose the mechanical whys and wherefors.

Midwest Utility Sponsors Appliance Salesman's School

FORT WAYNE, Ind.—Invitations have been sent out for the entire sales staffs of all local and area major appliance dealers to attend a six-week school for appliance salesmen sponsored by the sales promotion department of the Indiana & Michigan Electric Co. (formerly the Indiana Service Corp.).

The power company, whose sole interest in promoting the school is increased demand for electricity, will make use of the Edison Electric Institute Sales Training course recommended by the National Electric Retailers Association.

This course is built around a series of eight basic selling films and four films, in sound, that apply to the basic selling principles of four appliances—electric ranges, water heaters, home freezers, and home laundries.

Times Appliance Appoints Two New Sales Managers

NEW YORK CITY—The Times Appliance Co., Inc., distributor for Westinghouse in the metropolitan New York area, has announced the appointment of Ralph Morel as sales manager for radio and television and Henry Stephens as sales manager for kitchen utilities.

Morel comes to Times Appliance from Zenith Radio Corp. where he was general sales manager. He has been in the radio and appliance industry for more than 20 years.

Stephens is an air force veteran. He has been a member of the sales staff of Times Appliance since 1924.

Darjany's Appliance Moves

UTICA, N. Y.—Darjany's Appliances has moved to a new location at Third Ave. and Bleeker St.

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Our entire time is devoted to the manufacture, research and development of them. Write for particulars.

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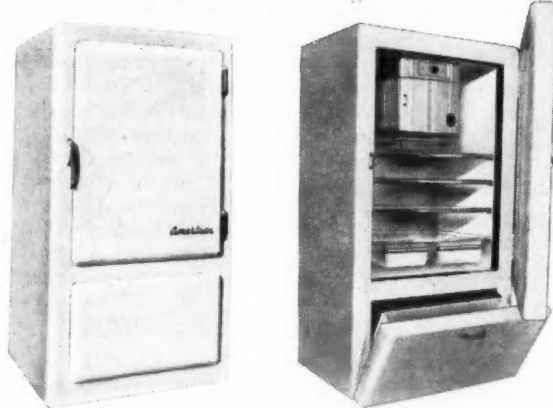
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HOUSEHOLD REFRIGERATORS



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9 CU. FT.

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CHECK THESE *Plus* FEATURES

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DIVISION OF
The SERRICK Corporation, Kilgore Ave., Muncie, Indiana

How Refrigeration Service and Parts Can Best Be Merchandised

Fundamentals of a Well-Run Service Business Are Outlined by Baragar

By Jack M. Baragar, Manager of Operations,
Johnston Refrigeration Construction, Detroit

I am sure that there are a good many of us present today who have had a very humble start in this great industry, beginning with perhaps themselves as the serviceman and his wife acting as call receiver, dispatcher, clerk, purchasing agent, credit manager, and what have you. For a base of operations, you probably used your house, garage, or perhaps if you had more money than most of us, you rented a \$15 per month store front.

From this beginning, some of you have progressed and prospered, making it necessary to expand your organization from one or two to possibly four, eight, or perhaps 50 employees. I know of a few cases where over 100 people are employed. Others have been content to keep their business comparatively small, but active, through the proper service sales methods. Still others have failed miserably and have fallen by the wayside, barely scratching out a living, or in some instances they have gone bankrupt.

Surely we have all had equal opportunities. It makes no difference if you work alone or own a large company. The formula for successful

merchandising through service is practically the same. The answer lies in the intelligent application of a few simple rules.

The first of these is in selling your service. And how do you do that?

1. First by receiving calls courteously and dispatching them quickly. Remember, your call receiver's attitude on the telephone and his, or her ability to follow through to completing the service required will indirectly bring you many sales.

2. *Personnel.* Select your servicemen for their personality, as well as their mechanical know-how. See to it that they keep neat and active at all times. Pay them well. A happy mechanic will always give you a good return for the money you are investing in him.

3. *Twenty-four Hour Service.* Set up your business to render service to John Customer at all hours of the day and night. Nothing makes him so angry as the loss of refrigeration because of lack of service. Around the clock service may sound expensive to you but actually it isn't if you measure your increase in sales volume against the extra service you can give.

4. *Invoicing.* Always charge a fair rate for parts and labor. Present these rates to the customer on a neat invoice, itemized and properly priced.

5. *Complaint Calls.* Treat every complaint and repeat call from your customers as though your livelihood depended on it. And it does! Negligence along these lines can soon reduce your standing in the community to the rating of "Alley Mechanic—Grade Z."

6. *Honesty.* Above all, be honest, both to yourself and to Mr. Customer. Give him 16 ounces for every pound and you will find him the purchaser of tons.

Parts of the National Association of Refrigeration Contractors' "know-how show-how" panel discussions held during their recent annual convention have been covered in this issue of Air Conditioning & Refrigeration News.

There is considerably more to come, however, and it is hoped that presentation of the convention material can be completed in the next issue. Some of the material that will be coming up includes "Service and Management Methods," with coverage on such subjects as "Labor Cost Control" (with a discussion of methods of computing service labor costs and charges), and "Parts Inventory Control."

Also to be covered are "Equipment Sales and Merchandising Methods," and "Finding, Hiring, Training, and Compensating Salesmen." The hotly debated subject of "Licensing" will also be covered, with details of the arguments on both sides.

Pointing the Way to Better Service Sales Methods



Jack Baragar of Johnston Refrigeration Construction, Detroit, serves as moderator on the "Service Sales Merchandising Methods" panel discussion at the N.A.R.C. meeting. Participants included (left to right): Walter McCarty, McCarty Bros. Equipment Corp., Chicago; Tom Reedy, North Town Refrigeration Corp., Chicago; and Harry Bransky, Bransky Refrigeration Co., Chicago. Reedy presented a discussion prepared by Harvey Miller of Murphy & Miller, Inc., Chicago, and Bransky offered one drawn up by J. J. Geering, Geering Sales & Service, Milwaukee, but both offered additional comment of their own.

Advantages and Problems In Service Maintenance Contracts Are Analyzed

By Harvey O. Miller of Murphy & Miller, Inc., Chicago as Presented with
Additional Comments By T. J. Reedy of North Town Refrigeration, Chicago

In discussing "contract sales," better known as "maintenance contracts," I believe we should analyze the complete maintenance contract structure, and with this thought in mind I wish to present the following breakdown in four separate sections:

1. Why do we have maintenance contracts?

2. What are their advantages?

3. What are their disadvantages?

4. What is needed in order to offer the service to your customer?

Going back to number one, "Why do we have maintenance contracts?" I submit the following reasons why we have them in the order of their importance:

1. To tie up a customer. In other words, put him in a position where he is bound to call us when he needs service.

2. To provide work for the men in a normally slack time. In this connection I refer to maintenance contracts that contain periodic lubricating and checkup service.

3. To provide fairly positive income.

What are the advantages of maintenance contracts? What do they offer the customer? Primarily, and the most important advantage to the customer, is the set or fixed maintenance cost. This is of great importance to customers who forecast and budget their business. To the customer it is an insurance policy against higher maintenance cost.

Advantages of Contract

I believe the advantages to the contractor, if there are any advantages for the contractor, are covered in the first section, "Why do we have maintenance contracts?" I repeat, closer tie to our customer, steady work for our men, and steady income for us.

As for disadvantages of maintenance contracts, I know of no disadvantage as it applies to the customer. I believe we should refer to "risks" instead of "disadvantages" when we approach the contractor's side of this question.

1. When we sell maintenance contracts, we put ourselves into the insurance business.

I am not too sure we belong in the insurance business, and if we do, there is a question as to what percentage of our total business should we do in this type of activity. There is a certain amount of gamble connected with maintenance contracts that needs definite reserves as a cushion to fall back on in case of an epidemic of breakdowns.

When pricing a contract, we face another risk. Unless we have records covering years of experience on the particular piece of equipment up for pricing, we have to guess at the price to a certain degree, and guessing is a risk and a big disadvantage.

Last, but not least, we face unforeseeable increases in cost. We take a year's contract today based on today's material and labor costs, but tomorrow they both increase with the result that we either lose money or fail to make our proper profit on the contract.

this story: "What is needed to offer the service to your customer."

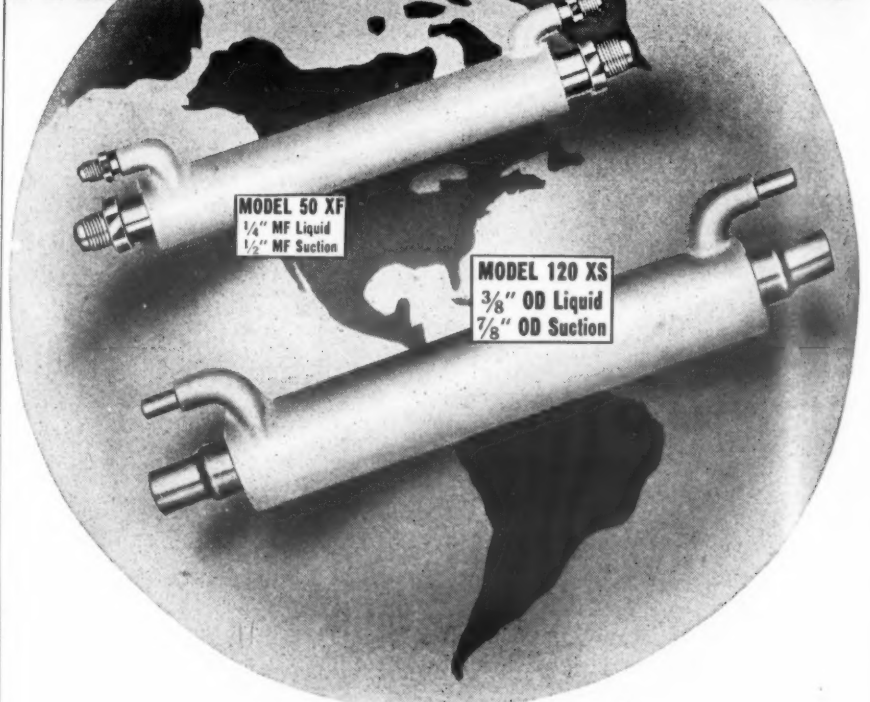
Some Necessary Clauses

Of greatest importance is a fool-proof contract form drawn up along the lines of some sick and accident insurance policies, which gives you the right to cancel it any time by refunding the unearned portion of the contract price. Naturally, this contract also must protect the contractor against responsibility in the event of misuse of the equipment, remodeling by others, floods, fires, etc.

Some contractors are using second-year maintenance contracts as a sales tool in selling new equipment. I question whether this is good business. I understand that our contractors association is active in trying to reduce the time covered by the manufacturer's standard warranty.

Surely, if we as an organization promote long-term maintenance contracts, we will find ourselves in a position wherein we are talking out of both sides of our mouth. A single maintenance contract should not provide servicing equipment at a flat rate price for any period longer than 12 months, without renewal.

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Featured by Cutler-Hammer refrigeration wholesalers and recommended by alert service dealers from coast to coast.

McCarty Explains Why Replacing the Part Instead of Repairs Is the Better Way

By Walter McCarty, McCarty Bros. Equipment Corp., Chicago

Whatever I say on the subject of "Parts Merchandising" is my own personal opinion which has been gathered from the 16 years we have been in the service and sales business.

As I see it, there are three general classifications or purposes backing up the sale of replacement parts. The first one, and I think the most important, is customer relationship.

How do we leave the customer? How does he feel after we sell him these parts?

The second reason behind the sale of parts is that if parts are properly sold to a customer where they are needed, the result will be a lower service bill to the customer. The third and last reason is the net profit to the servicing organization.

Let's take reason number one first, customer relationship. By sending a serviceman out on a service call on a piece of equipment that has possibly not been serviced for two or three years, the serviceman finds the expansion valve out of adjustment. You are far better off replacing the expansion valve immediately than you are trying to adjust the expansion valve on the first call, getting a repeat call, going back the second call and adjusting the valve again, and finally, on the third call replacing the valve.

If the valve were replaced originally on the first service call, whatever charges were made on the first and second calls originally would have been eliminated.

What I am trying to drive at is, that by replacing the defective part immediately on the first call the customer's opinion of the serviceman will be a very good one and the customer will believe that not only the serviceman, but also the service organization knows its business because the serviceman went there on his first call, located the trouble, installed the new parts, and put the customer's equipment back into service. Selling replacement parts in this manner can never result in a customer saying a service organization does not know its business.

Second reason for merchandising parts, is a lower net service bill.

Using as a typical example a motor exchange, on the first service call the serviceman finds bad brushes in an electric motor that has probably been in service for three to four years. The serviceman installs a new set of brushes and thinks that he has done the customer a favor. Probably when the serviceman leaves the job the short circuit necklace is dirty, bearings can be bad and possibly in a week or two the motor will burn out resulting in a repeat service call and a large service bill for a re-wound or new motor where as if the serviceman on the original call instead of replacing the brushes had exchanged the motor right then and there, the net charges to the customer would have been much lower than they were for replacing the brush on the first call and then selling the customer a new motor two weeks later.

Therefore by replacing the expansion valve instead of adjusting it; by exchanging or installing a reoperated motor instead of installing a new set of brushes; by exchanging the compressor when the valve plate is leaking or the seal is leaking especially on a job that has been in service for two or three years or longer; by doing these things on the first service call you create better customer relationship and render much more economical service to the customer.

The third reason that I see for merchandising parts is the profit to the service organization. Although I do not think that any business should be in business for the profit only, yet a profit is necessary to continue to remain in business. By exchanging a complete compressor body on a unit that is two or three years old where a leaking seal or a leaking valve plate has been found, the net profit on such a service call is greater to the service organization that just changes the seal or valve plate on the job.

Remember that with today's wages for the serviceman that it is a lot cheaper to replace the part on the first service call than it is to make two service calls and then replace the part on the third trip anyway.

Develop 'Personality' In Your Servicemen To Produce Best Salesmen, Geering Says

By J. J. Geering of J. J. Geering Sales & Service, Milwaukee, as Read By H. L. Bransky of Bransky Refrigeration Co.

When assigned the topic of "Service Sales," I decided to turn into an inquiring reporter and call on several local contractors to ask these questions:

"Before establishing your own business did you make any sales?" Answer, "Yes."

"Do you now have in your employ any serviceman who is capable of making sales?"

"Yes."

"What percentage of your sales are replacements?"

No figure.

"Do you think a good serviceman could be trained and developed to be a salesman?"

"Yes."

"What do you think is the outstanding trait necessary to be a good salesman?"

"Guts."

As I look back over the years, I remember that the most successful salesmen were men who had spent several years in doing service work and who developed and enjoyed a certain appreciation that they were rendering a real service to someone. Usually when you find a man that thinks this way you will also find that he has personality and gets along with people—the main quality in any salesman.

Try to develop him further by giving him some sales tools and getting him to realize that he has these latent qualities which he should put to work on making sales and increasing his earning power.

Some time ago the Carnegie Institute made a survey which revealed that of all the failures in salesmen only 15% were caused by lack of knowledge, ability, or work, and 85% could be traced to personality defects that kept them from influencing the prospect.

This recalls to mind an incident

which happened several years ago. One day a tip was received that Joe Grocer was in trouble and intended to buy some new equipment. Salesman Sam went to see Joe Grocer, and, after a quick survey, suggested that if Joe Grocer purchased a new condensing unit and a few valves he would have practically a new installation; and it was a good thing for him we had just the unit he needed in stock; and the work could be done that afternoon; and the entire cost would be only \$550.

Joe Grocer said that seemed all right. But—he was planning on doing some remodeling in the future and would like to get by at this time with just a repair job.

The service dispatcher gave the call to Otto Wiensch. Otto was the kind of a fellow who always had a smile and he could say that you were crazy and get away with it.

While waiting to make sure everything was okay, Otto suggested that Joe Grocer ought to consider in his plan one of the newfangled double-duty cases, which would eliminate the cloudy glasses and make it easier for his customers to see the products on display, and also a new reach-in box in white Dulux to match the case with glass doors.

To his surprise Joe Grocer inquired as to the price. Otto called the office, got the prices, and came back with a signed order for the case, the reach-in, and new condensing unit.

This sale opened the eyes of the sales manager, who made a personal investigation. He was told by Joe Grocer that the salesman never suggested the idea of a new case and that he appeared arrogant, while the serviceman impressed him. He bought immediately because the serviceman was not trying to sell him, merely suggesting.

Questions Cover Matter of Commissions for Leads, Problem of Overtime Calls on Contract Service

No Commission, But Tips for Good Leads

Educate Customer To Avoid Overtime Calls

Question—"Do you pay commissions on parts sales, or for unit sales a serviceman might make?"

Answer (McCarty)—"We don't pay commissions on parts sales. If a serviceman gets a lead on a possible new equipment sale, we have him call in the lead to the sales department, because we think the sales department can do a better job of selling."

"We do pay a 'tip' fee where such leads result in sales, the amount being determined by the type of equipment."

"Commissions paid to servicemen have an effect on the serviceman's overtime pay under the new 'overtime-on-overtime' ruling. Such commissions must be figured into the base pay."

Question—"How long are such leads from servicemen protected?"

Answer (McCarty)—"Leads to possible sales which we get from servicemen are protected for four months."

Question—"What about possible conflicts between maintenance-contract calls and regular service calls?"

Answer (Reedy)—"Contract customers should be given preference because their business is on a 12-month basis."

Comment: "I have considered service contracts, but have been leery about them because of the overtime problem."

Answer (Reedy)—"Perhaps there should be some sort of penalty if a maintenance-contract customer calls in late when the call was only routine. I would suggest trying to educate the customer so that this sort of thing wouldn't happen."

Question—"What is the percentage of overtime service on maintenance contracts?"

Answer (Baragar)—"We have kept records on that and I can tell you that in our case, overtime calls do not exceed 15% of the total."

Electric Auto-Lite Thermometer Line Described In Bulletin

TOLEDO—A new four-page bulletin describing Auto-Lite recording and indicating thermometers has been issued by the instrument and gauge division, Electric Auto-Lite Co. here.

Included is a brief description and illustration of the firm's refrigeration thermometer for freezers, cold-holding, and dispensing cabinets.

Four other standard thermometers, with an assortment of dial ranges are also covered.

MORE CALLS BETTER SERVICE BIGGER PROFITS



WITH DEPENDABLE HINSDALE REFRIGERATION SERVICE SET

Here is a complete refrigeration service kit containing the important "sockets" needed by the refrigeration repair man to handle every job. All tools are precision built and engineered especially for ease in handling exacting refrigeration repair problems. This Master Mechanics Set includes 19 HINSDALE super quality Square Drive and Packing Gland sockets—size 9/32" to 3/4". Available in either 9/32" or 1/4" drive. Also included are short Box Wrenches and Handles. Packed in heavy metal case, 8 1/2" x 5 1/4" x 1 3/8". The perfect answer to better service and bigger profits. Order today. Free literature.

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Your Equipment is NOT COMPLETE without . . .



THE MIDGET PURGER

The Midget is the companion or sister product to the Little Giant Purger. The Little Giant, previously introduced, is for purging the larger units, but the Midget is a low cost, water cooled purger designed for economical operation for the smaller or fractional units up to 10 hp.

The Midget Purger provides positive and complete purging of the refrigerating system with minimum loss of refrigerant.

Purging is an operation familiar to all refrigeration men. With the standard purging facilities it is usually impossible without an appreciable loss of refrigerant.

When non-condensable gases are present in a refrigerating system, it will operate at higher pressures than if these gases were not present. Unnecessarily high pressures result in the compressor being subject to:

Higher bearing loads. Higher discharging temperatures. Increased wear on moving parts. Greater power consumption.

HERE ARE THE ADVANTAGES OF PURGING WITH THE MIDGET PURGER

THERE IS NO GUESSING—By bleeding off the gases through the purge valve until the liquid rises to the top, you have a positive indication when purging is completed.

MINIMUM REFRIGERANT LOSS—The air in the system is completely separated from the refrigerant before the purge valve is opened.

SIMPLE TO OPERATE—All operating valves easily accessible. Not necessary to check pressures or temperatures. No need to shut down the system.

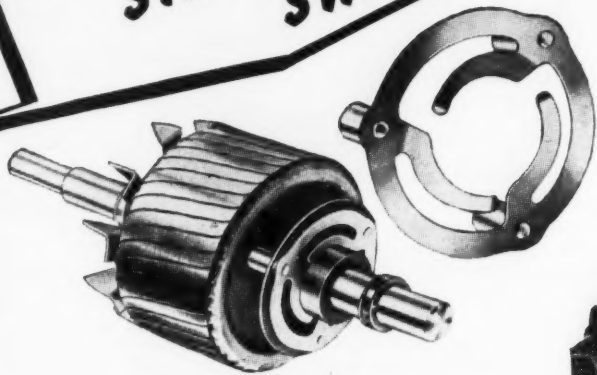
POWER SAVINGS—Power savings, due to a reduction in head pressure will pay for the "MIDGET PURGER" many times over.

MANUAL OPERATION—Fully manually operated, there is no possibility of a slow leak developing which would cause a loss of refrigerant before the trouble is located.

ORDER THROUGH YOUR WHOLESALE

MUELLER BRASS CO. PORT HURON, MICHIGAN

THIS NEW STARTING SWITCH



TORQ SYNCROSNAP SWITCH

The TORQ Syncrosnap Switch is simple, positive, efficient. It has no coil nor leaf springs, no toggle action, no complicated assemblies. It consists of a simple disc, with integral fingers, stamped as a single piece from special spring metal.



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IS REVOLUTIONIZING FHP MOTOR OPERATION

Winding burn-outs and switch "flutter" under excessive starting loads are eliminated; useful life of windings and parts is extended two to three times in the new TORQ Electric motors with the exclusive patent pending.

TORQ SYNCROSNAP SWITCH

TRIGGER-FAST, POSITIVE ACTION

Syncrosnap Switch action is positive and fast. It must be "in" or "out." There is no half way point, no slow down, no "flutter" or failure, even when acceleration is prolonged under heavy load. It acts at the point of maximum torque.

AN EXCLUSIVE TORQ MOTOR FEATURE

TORQ F.H.P. MOTORS, with the exclusive Syncrosnap Switch are available in split phase and with capacitor start in 1/8, 1/4 and 1/2 and 1/2 H.P. ratings. Temprex overload protector furnished as required. Stock or special models for all types of electric appliances and equipment.

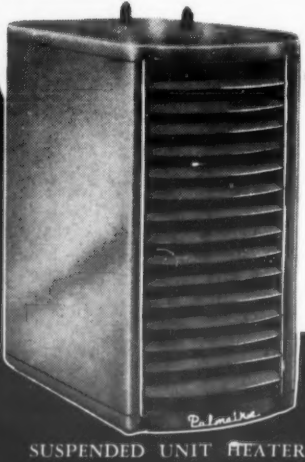
THE MASTER SERVICE MANUALS - - -

— — — and other books of the Refrigeration Library are depended upon as textbooks in trade schools from coast to coast.

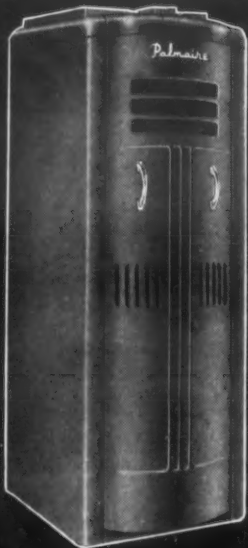
BUSINESS NEWS PUBLISHING CO., DETROIT

FREE (100%) FREIGHT COST
PALMAIRE pays the freight cost on one unit or carloads (within the U. S.)
We are "next door" to you in Freight Costs!

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BELOW
FOR DETAILS



SUSPENDED UNIT HEATER



FORCED AIR FURNACE



HUMIDIFIER

Palmaire

AUTOMATIC GAS FURNACES

"Palmaire pays the freight to any state"



AGA approved
for all type gases

BEAT MEET-YOUR COMPETITION

YOU CAN MAKE MORE MONEY selling the Palmaire quality line of automatic gas heaters. Palmaire heaters are the only *completely* die formed unit heaters on the market, ornamental enough for the finest ladies ready-to-wear shop, efficient enough for the most critical plant manager.

- FULLY AUTOMATIC
- ABSOLUTELY SAFE
- WHISPER QUIET
- MODERN DESIGN
- GOOD LOOKING,
- EASILY INSTALLED
- ECONOMICAL
- EASY TO SELL

Mail Coupon Now for sales literature and details on generous cooperative advertising program. Palmaire pays up to 50% of space and radio time.

Palmaire

MANUFACTURING CORP. Phoenix, Ariz. Dept. N-9
We are Distributors Dealers
Please send sales details on Palmaire heaters

Name.....

Address.....

City.....

Zone.....

State.....

Cooling Tower Maintenance Should Include Water Distribution System and Structure

This is the concluding instalment in a series of three articles giving detailed information about servicing and maintaining cooling towers. It was based on a talk presented by Ray Baker of the C. H. Wheeler Co. at classes for textile mill maintenance engineers conducted at Winston-Salem, N. C., recently by the Bahnson Co., a manufacturing and contracting firm.

By Ray Baker, C. H. Wheeler Co.

WATER DISTRIBUTION SYSTEM AND BASIN

With one exception, the water distribution system inspection can be at relatively long intervals. The interval should be decreased when the water is exceptionally dirty.

As we pointed out in the very brief discussion of the theory of cooling tower operation, the water distribution system is made to divide the water and thoroughly spread it over the entire tower area. At the bottom of the tower, the water falling may be observed either through the louvers or through an access door if one is available.

The falling water gives the appearance of a heavy rainstorm and it is a very simple matter to determine whether the water is properly distributed as it nears the bottom of the tower. However, the purpose of the wood fill is to continually break up the water and it may be that it will be properly distributed at the bottom even though it may be more concentrated at the top.

It is necessary, therefore, to actually inspect the water distribution system itself at the top of the tower to determine whether the same amount of water is emerging from each of the orifices or nozzles. These can be checked readily by observing the thickness of the stream of water emerging and also the horizontal distance it carries.

The flumes and troughs should be checked to see they all have approximately the same water level and also the water distribution from one cell to another should be checked. The cooling tower provides cooling at the design temperatures only when water is evenly distributed. If the water is concentrated in one cell of a multi-cell tower then the best operating conditions cannot be expected.

If the water is not properly distributed, the source of difficulty is usually clogging out of the water distribution system by some material which has been carried by the water from the place where the dirt entered the water cycle (dust carried in by air, washed out, etc.). The method used in cleaning the distribution system will depend on the extent of the clogging.

LOCAL OR GENERAL CLEANING MAY BE NECESSARY

If it is only the fouling of a few ferrules or orifices, local cleaning may suffice. However, if the water distribution system is in generally bad shape, it might be cleaned with a fire hose, washing all the mud into the basin and draining the waste. At the same time the basin should be cleaned out. Avoid high pressure hosing of Redwood basin. It is also important to check the debris screen and to clean it when required.

To maintain water opening, the position of the vortex breaker is important since it is intended to prevent pulling air into the circulating water pump, which would damage the pump. Pulling air into the pump would also reduce the quantity of water being circulated. With deep basins, vortex breakers need not be used, but if the water level in the basin is only a few inches above the pump suction the vortex breaker is an important item in basin construction.

It is also important to check the float valve which admits makeup water to the basin. It will be remembered that water is lost continually from the cycle by evaporation, by

drift loss, and also by leakage. The water level in the basin should be observed at least twice per shift in order to insure that the water system will remain filled and no damage will result to the equipment.

The float valve should be operated every shift by raising and lowering the float by hand to observe that the water is admitted when the float is lowered and that the water is shut off when the float is raised to the proper position.

STRUCTURE

Semi-annual inspection of the structure should be sufficient, provided that all defects discovered at that time are promptly remedied. The entire structure should be checked for vibration and all fastenings (bolts and nuts) should be tightened. It is wise to tighten all bolts and nuts with a wrench to insure that they will not work loose.

Steel parts which are not galvanized should be repainted at regular intervals whether rust has begun or not. The interval will depend on the quality of paint used and also on the atmospheric conditions and the semi-annual inspection will indicate how often the painting should be done. Where rust has occurred, the thickness of the sound materials should be determined. If this thickness has been reduced by a sizable amount, the part should be replaced.

The soundness of the wood should be checked, especially in the framework. Most cooling towers are designed to resist 30 lbs. per sq. ft. of wind pressure, which is the equivalent of a 100 mile per hour wind. They will continue to resist that wind as long as the framework is in sound condition.

You may have observed advertisements by power companies or the Bell Telephone Co. which showed a pole tester. They use a penetrating device in order to check the soundness of the poles. An ordinary ice-pick may be used for parts which are believed to be unsound and would provide a good indication. It is not necessary to punch holes in the entire cooling tower framework, but parts suspected to be weak can easily be checked in this manner.

Available from 1/2 to 10 H.P.

CLEANABLE DOUBLE-TUBE COUNTER-FLOW WATER-COOLED CONDENSERS

Write for literature

Halstead & Mitchell
BESSEMER BLDG.
PITTSBURGH 22, PA.

REMCO "Liquid-Fin" HEAT EXCHANGERS

LIQUID flows inside the spiral corrugations in "prime" heat exchange relationship with the colder higher velocity suction gases which travel outside the rapid-transer "Liquid-Fin" heat exchanger element. Capacity per unit size is very high.

ASK YOUR WHOLESALE... OR WRITE

REMCO, INC., ZELIENOPLE, PA.

Be Smart! Get the New No. 148 Fall and Winter **DEPENDABOOK!**

HARRY ALTER'S REFRIGERATION PARTS CATALOG

A catalog issued to and for the trade only... Write NOW—on your letterhead, for your copy of the most nearly complete refrigeration-parts-and-supplies catalog in the business—the new **DEPENDABOOK!**

The HARRY ALTER CO. 1728 SOUTH MICHIGAN AVE. CHICAGO 16, ILL.
134 Lafayette St., New York 13, N. Y.

WHOLESALE ONLY

Appliances Must Be Designed for Safety Even If Improperly Used, Speaker Warns

CHICAGO—Manufacturers of ranges, refrigerators, and similar appliances, among others, "must accept some share of the responsibility for home accidents whenever their products are so designed that they can be hazardous in service," Tyler S. Rogers, of the Owens-Corning Fiberglass Corp., declared before the home safety division of the National Safety Council here recently.

"It isn't enough merely to require these products be safe when properly used," he asserted, "we should insist that they be designed so that they cannot become hazardous even when improperly used."

"That is a tough attitude to take, but I cannot absolve a manufacturer... unless (he has) taken every possible step to make (his) products foolproof and shows clearly how (his) products should be installed for maximum safety."

Rogers noted, however, that improperly protected domestic appliances are "probably the cause of the fewest number of accidents" in the home because they are quite generally

covered by provisions of local safety codes.

In addition, he said, "everyone recognizes the imminence of high personal danger in these sources of power and in the hazards of fire, hence they respect the codes and support their enforcement."

Rogers discussed other "built-in" hazards in homes and pointed out to architects, home designers, building materials and equipment manufacturers, and builders that they shared the responsibility, even though in a limited degree, for the great number of accidents that occur in homes.

He said that the number of accidents in the home could be reduced by closer attention to the possibilities for accidents on interior stairways, outside walks and steps, unsafe floors, cupboards and cabinet doors, (mentioning refrigerator doors here) closets and their fittings, doors that swing the wrong way, poor traffic arrangements, inadequate lighting, fires, and electricity, gas oil, and coal fuels.

Fair Trade Laws Seen As Inflation Brake By Council Speakers

NEW YORK CITY—Fair trade laws were credited with providing a brake to inflation, preventing the failure of many businesses, and gaining consumer recognition of the quality of traded products, speakers before the American Fair Trade Council, Inc. told that organization at its recent annual meeting here.

John W. Anderson, re-elected president of the council, asserted that the large stores that had been loudly proclaiming cut prices on "name brand" products are now the ones wailing the most because they are being undersold by discount houses.

"The economic tragedy that finally descends as a result of the quality squeeze, forced by the cut-price spiral, leaves the consumer totally unconscious of the source of his distress," Anderson declared.

"All the consumer knows at last for sure is that the excellent product he once preferred either has been discontinued in his neighborhood, or he finds the quality has been so steadily diluted under the cut-price spiral as to give much less 'mileage' per dime of retail price."

More surveys to demonstrate how fair trade has kept prices stable in the inflationary period were urged.

Starts New Store In Toronto

TORONTO, Ont., Can.—Wayne Radio Co. has opened its new radio and appliance store at 446 Parliament St.

YOU'RE THE BOSS when you specify USP SHELVING



Abundant Facilities
Keep Costs Down
—Rigid Inspections
Assure Top Quality
Always

At every fabrication operation USP shelves are carefully inspected. Here shelves are being checked prior to plating.

JUST TELL US HOW MANY AND WHEN YOU WANT 'EM

Write your own ticket as to size, shape, quantity and delivery. Because its production facilities are so great, Union Steel can produce any shelving requirement at rock-bottom economy. Or, if you have a design problem, USP engineers can show you how to get more and better shelving for your money. For

the best in shelving, see Union Steel first!



UNION STEEL PRODUCTS COMPANY
ALBION, MICHIGAN

Bendix 'Windough' Display Contest Offers \$21,000 In Laundry Equipment

SOUTH BEND, Ind.—To promote the purchase of its appliances as Christmas gifts, Bendix Home Appliances, Inc. is currently conducting a "windough" display contest for Bendix dealers offering prizes worth \$21,000 at retail value. The contest closes on Christmas day.

Thirty-six prizes, consisting of Bendix automatic home laundry equipment, will be awarded to contestants in four dealer classifications. First prizes are a Bendix automatic washer, dryer, and ironer; second, choice of two; third, choice of one.

The "Bendix Automatic Washer Windough Display Contest" requires only that the contestants show a Bendix automatic washer for a full week, file an official entry blank and submit a photograph of the window. Deadline for receiving entries is Jan. 10.

Factory-supplied display material may be used in the window, but this is not mandatory. Available are a display on the automatic soap in-

jector and a Christmas display to be placed atop a washer.

"Every dealer has an equal opportunity to win, since each competes only with stores in his own classification," explained W. C. Jones, sales promotion manager. "Competent judges will view the photographs, merchants from one division judging entries from another division in each instance."

Besides prizes for 36 dealers, the contest offers an award to any distributor's wholesale salesman who has any winner among his dealers.

The four dealer classifications, each of which will receive identical prizes, are: Class 1, utilities and department stores; class 2, furniture stores; class 3, all other dealers in towns over 25,000 population; class 4, all other dealers in towns under 25,000.

In addition, the country is divided into three geographical divisions which allows dealers in their individual classifications to compete against others in the same region. Each division will function as a separate unit for contest judging, and in each there will be awarded a complete set of prizes in each of the four classifications.

Dream House Washer Sale Features Free Soap Chips

ELMIRA, N. Y.—Dream House Furniture, Inc. boosted the sale of electric washers by offering 50 packages of soap chips with every washer purchased during a special Christmas promotion.

As another inducement, the store suggested that "Dad and the children combine their Christmas money and get Mother a new electric washing machine."

Houston Store Is Sixth Link In Texas Home Appliance Chain

HOUSTON, Tex.—A new Flato home appliance store opened here recently at 5701 Kirby Dr.

The new Flato store is the sixth to be opened by the fast-growing Texas appliance chain, and celebrated by a door-drawing for special appliance prizes, plus many gifts and favors. The new store has dimensions of 40 x 40 ft., with an all-open front, powerful fluorescent lighting, and individualized departments.

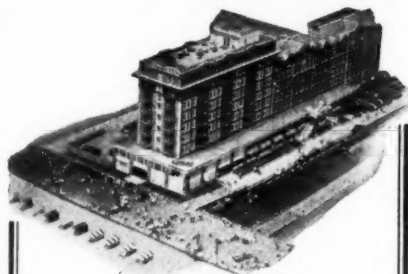
Are You Looking for An Easy Way to Handle Stoves, Refrigerators and Freezers

Solve Your Problem with the New ROLL-OR-KARI Dual Trucks

Patented Step-On-Lift • Folding Handles
Capacity 1000 Lbs. • Shipping Weight 40 Lbs.

WRITE TODAY

THE ROLL-OR-KARI CO.
MANUFACTURERS
ZUMBROTA • MINNESOTA



HOTEL STRAND

ATLANTIC CITY'S HOTEL of DISTINCTION

Devoted to the wishes of a discriminating clientele and catering to their every want and embracing all the advantages of a delightful boardwalk hotel.

Spacious Colorful Lounges—Sun Tan Decks atop—Open and Inclosed Solaria—Salt Water Baths in rooms—Garage on premises. Courteous atmosphere throughout.

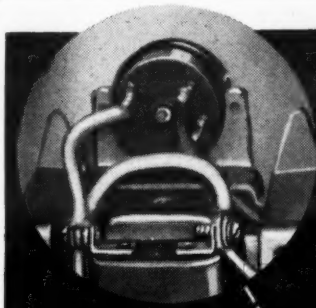
When in Atlantic City
visit the

FAMOUS FIESTA LOUNGE

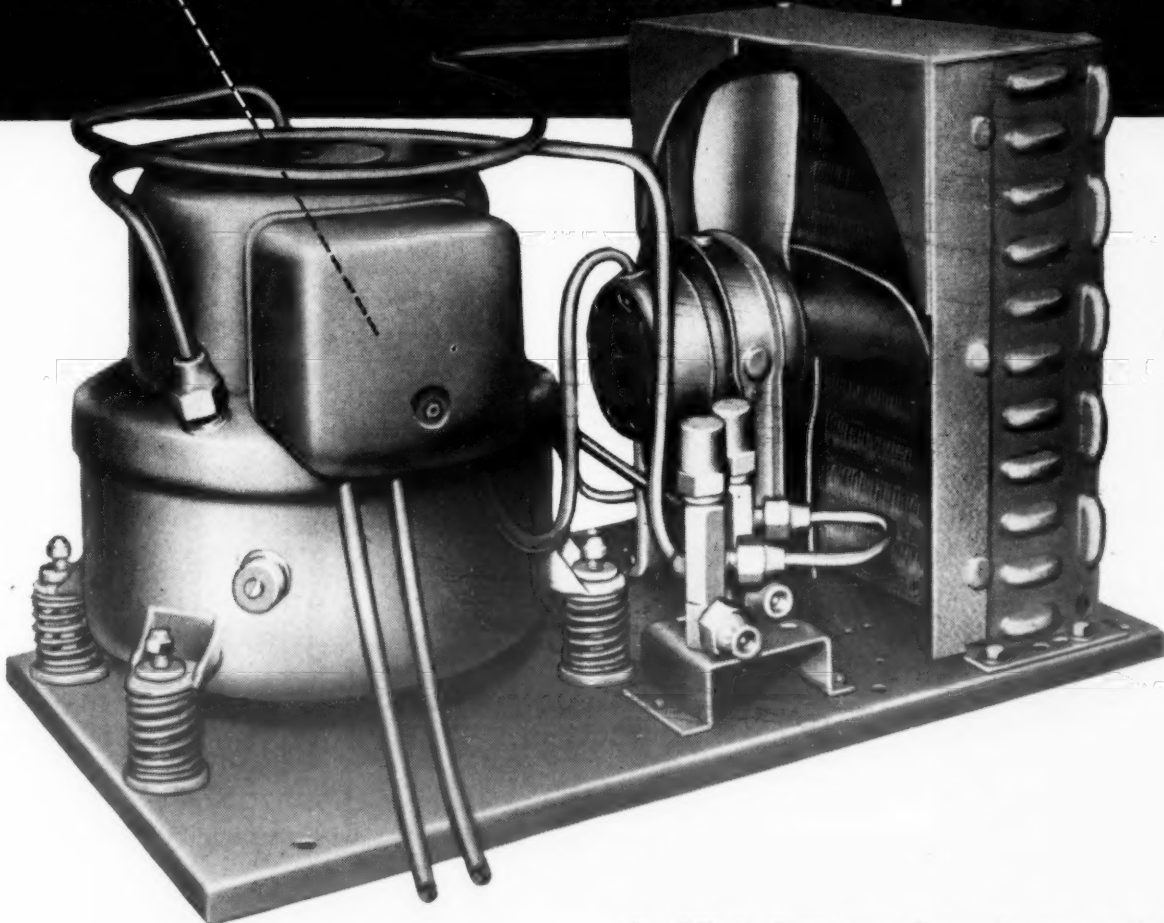
RENOWNED FOR FINE FOOD

OPEN ALL YEAR

Under Ownership Management
Exclusive Penna. Ave. and Boardwalk



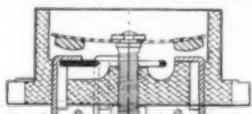
To Eliminate Motor Burnouts—Use KLIXON DOME MOUNTED PROTECTORS In All Hermetic Compressors



Here's a simple way for domestic and commercial refrigerator manufacturers to reduce the returns of hermetic units, cut service calls and keep customers sold on their brands... use hermetic units with Klixon dome mounted Protectors.

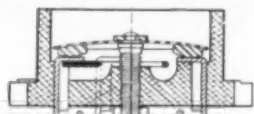
These foolproof protectors take into account all the factors that cause motor burnouts... clogging of condensers, poor ventilation, hot rooms, etc... and shut "off" the power should the motor become dangerously overheated. When the motor cools to safety,

HERE'S HOW KLIXON PROTECTORS WORK!



CLICK... IT'S OFF!

Should a motor become overheated and dangerously hot, the Klixon Protector snaps the power "off" preventing the motor from damage.



CLICK... IT'S ON!

When the motor cools to safety, the Klixon Protector snaps the power back "on" automatically.

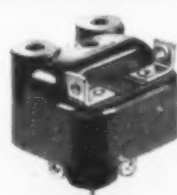
the Klixon Protector snaps the power "on" again automatically permitting the unit to maintain refrigeration thus preventing food spoilage.

Protect your refrigerators, freezers, show cases, beverage coolers and other refrigerated equipment from motor burnouts, specify and use hermetic units with Klixon dome mounted Protectors.

KLIXON

SPENCER THERMOSTAT COMPANY
2412 FOREST ST., ATTLEBORO, MASS.

KLIXON MOTOR STARTING RELAY completes the combination required to start and protect the hermetic motor. Its positive action and long life eliminate starting troubles and make it a fitting companion for the Klixon Protector used and recommended by leading refrigeration manufacturers.



Fastest Selling Line OF WELDED-STEEL Refrigerators-Display Cases



Tyler's Tops in commercial refrigeration equipment—with a complete, store-tested line of fast-selling, welded-steel refrigerators and display cases for groceries, markets, restaurants, hotels, institutions, bakeries, taverns, drug stores and florists.

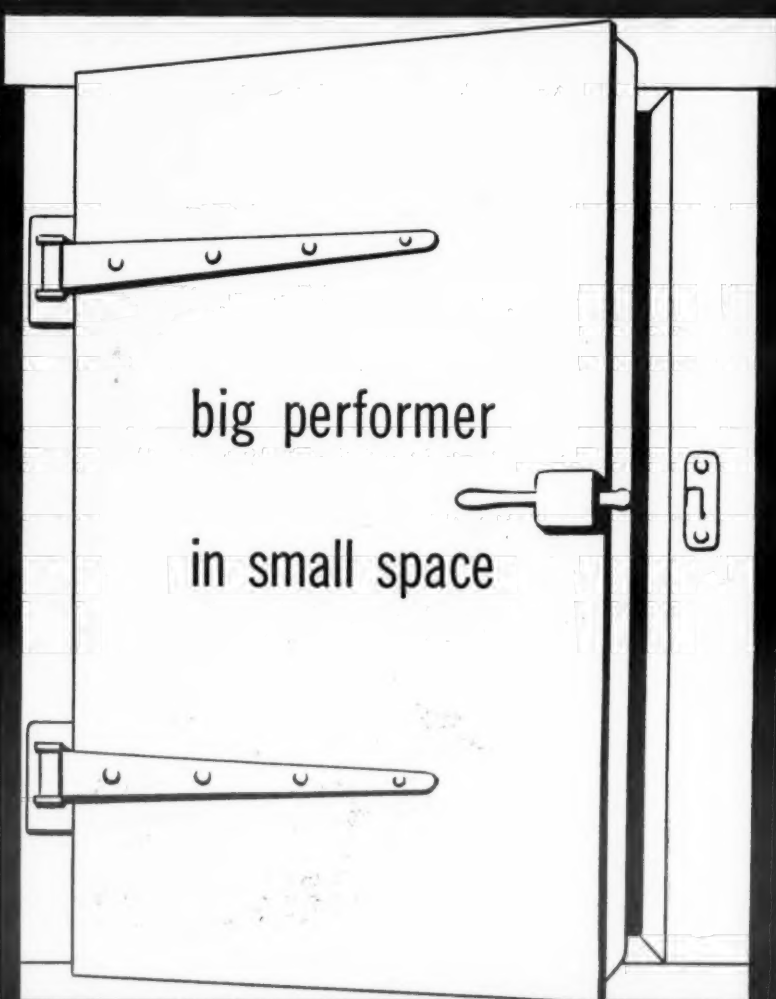
FOR ADDITIONAL INFORMATION, WRITE TYLER FIXTURE CORPORATION, NILES, MICHIGAN

IT'S
TYLER
FOR FOOD REFRIGERATION

THE MASTER SERVICE MANUALS - - -

— — — and other books of the Refrigeration Library are depended upon as textbooks in trade schools from coast to coast.

BUSINESS NEWS PUBLISHING CO., DETROIT



The cold diffuser that's best for relatively small space is one that gives plenty of refrigeration to handle peak loads. It delivers this big volume at low cost. And you want a compact unit that chills or freezes as need arises. That describes the Carrier ceiling-suspended Blast Freezer.

Here's an efficient, time-proved unit with ample capacity for fast, economical freezing of meats, vegetables, fruits and other products, for medium-

temperature chilling or storage of dairy products, flowers, furs. As a freezing unit, it provides positive, directional air circulation that eliminates dead spots and pockets in the freezing space, and speeds up freezing time.

Units are available in four different capacities. All have adjustable louvers to control direction of air flow. Cooling coil, fan motor and drip pan are integrally housed in rugged, compact

steel case, with slotted channel clips for easy suspension. Finished in Bond-erized gray enamel for long life. Water defrosting is available for installations where below-freezing temperatures must be maintained.

Carrier gives you engineering skill perfected through years of experience with refrigeration problems all over the world. It is these extra values that make Carrier your best investment. Carrier Corporation, Syracuse, N. Y.

Carrier

AIR CONDITIONING • REFRIGERATION • INDUSTRIAL HEATING

20% of Nebraska's 450 Locker Plants Are Already Merchandising Frozen Food Products

OMAHA, Neb.—It will be only a matter of time until merchandising of frozen foods, including fruits, vegetables, poultry, and fish, as well as meats, will be the main business of frozen food locker establishments, while slaughter and storage will be only incidental operations, Marion W. Sargent of Beatrice, Neb., told delegates at the Nebraska Frozen Food Locker Association convention here.

The speaker stated that the locker business is entering a new era, and already 20% of Nebraska's 450 plants have started to merchandise frozen food products.

He pointed out that formerly plants stayed solely in custom slaughter and storage. Merchandising will require attractive display involving use of modern refrigerated cases, and advertising, he further indicated.

A warning against "bootlegging germs" was given the lockermen by T. A. Filippi, director of the Nebraska Department of Health and Sanitation. He declared that because a man with a sore throat milked a cow one morning, Nebraska had 4,000 cases of septic sore throat and 12 deaths from it. His plea was for

greater sanitation in locker plant operation.

Steady, planned advertising rather than spasmodic and hit-or-miss use of the advertising media was urged by Harry Keller, national advertising director of the Omaha *World Herald*.

He told the lockermen that newspaper readership has grown from 39,000,000 persons in 1888 to 52,000,000 daily circulation today. National advertising was \$338,000,000 in 1888, he added, while today it represents \$4,000,000,000 annually. He advised the locker operators to "keep everlastingly at it" to assure results.

R. A. Reid of David City was elevated from vice president of the association to president, succeeding Lester Sollenberger of Fairbury. George Ellenwood, Lyons, was elected first vice president; R. A. Therin, Lincoln, second vice president; W. H. Hasebrook, West Point, re-elected secretary treasurer.

New directors named are J. M. Jenkins, Alliance, and Joseph Fidel, North Platte, while directors re-elected are B. J. Robinson, Albion; C. H. Warnke, Pawnee City; Leonard Hammang, Fremont; David Beckhoff, Thedford, and Messrs. Sargent and Sollenberger.

Goodrich Will Double Production Capacity Of 'Cold Rubber' Plant

PORT NECHES, Tex.—With the installation of new equipment authorized by the Reconstruction Finance Corp., the production capacity of the "cold rubber" processing plant operated by the B. F. Goodrich Chemical Co. here will be doubled, company officials have announced.

According to William S. Richardson, president, the capacity of the plant is now 15,000 tons annually. This will be boosted to 30,000 tons annually.

"Cold rubber" is made from the same materials as general purpose synthetic rubber, but these raw materials are mixed at 41° F. instead of the usual 122° F., it was pointed out.

Most of the production of "cold rubber" will go into tire treads.

Eureka Williams Corp. Nets \$45,064 for First Quarter

NEW YORK CITY—Net earnings after taxes of Eureka Williams Corp. for the first quarter of the fiscal year ended Oct. 31, were \$45,064 amounting to 10 cents a share, it was announced by H. W. Burritt, president, following a meeting of the board of directors here. This compares to earnings of \$209,267 or 45 cents a share for the same quarter last year.

Million Dollar Studios Get Coolstream Water Fountains

NEW YORK CITY—All three floors occupied by the million dollar studios of radio station WMGM at 711 Fifth Ave. here are equipped with Coolstream electric water coolers, the Coolstream Corp. has recently announced.

The coolers have black du Pont lucite tops, stainless steel cabinets, and stainless steel rear enclosures for the purpose of concealing plumbing connections.

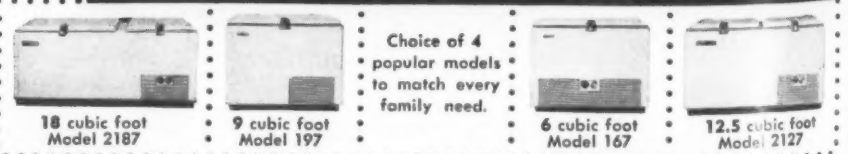
Big Steel Companies Reach 99.2 Percent of Capacity

NEW YORK CITY—Operating rate of steel companies having 94% of the steel capacity of the industry was 99.2% of capacity for the week beginning Nov. 22, equivalent to 1,788,100 tons of steel ingots and castings, compared to 1,784,500 tons one week ago, 1,685,200 tons one year ago, and 1,281,210 tons for the average week in 1940, the highest pre-war year, according to the American Iron & Steel Institute.

Refrigeration Discount Corp. Moves to Randolph-Wells Bldg.

CHICAGO—Refrigeration Discount Corp. has announced that it has moved to new and larger quarters in room 718, Randolph-Wells building, located at 130 N. Wells St., Chicago 6.

BEN-HUR Dealers Enjoy A 4-TO-1 SALES ADVANTAGE in FARM and HOME FREEZERS



You turn prospects into customers faster with the BEN-HUR Freezer franchise! You can offer every prospect COMPLETE-LINE-CHOICE... a BEN-HUR freezer that matches exactly the need of any family in your community—with 6, 9, 12.5, and 18 cubic foot cabinets that hold from 300 to 900 lbs. of frozen food.

Each of the FOUR popular BEN-HUR Models takes the lead in modern styling, convenience features, food freezing and storage efficiency—and operating economy... And in the home they promise customer enthusiasm through longer years of food savings and better meals.

Help EVERY Family
"Slash the High Cost of Eating"

with a BEN-HUR Freezer...

BEN-HUR MFG. CO.

Dept. AC634 East Keefe Avenue, Milwaukee 12, Wisconsin

BEN-HUR FARM and HOME FREEZERS



BETTER FILMS WILL AID SALE OF HOME FREEZERS

Oregon Equipment Co.
Kalamath Falls, Ore.

Editor:

Inasmuch as I have derived a goodly portion of my bread and butter during the past several months from the sale of home freezers, I have appreciated immensely your comments and editorials on the subject. Because you have been an outspoken champion of the cause I thought perhaps you might put in a plug for an idea of mine.

I've worked freezers "door to door," at Women's clubs, the Grange, the Farm Bureau, County Fairs, Air Shows, and on the floor, and as a result of my efforts I've sold freezers in every case; so I speak from experience, not theory.

My most effective selling aid has been a collection of films and records and a Jam Handy projector such as those used by the Services in visual aid instruction. The films and records do a splendid, interesting, and appetizing job of pointing out the many ways a freezer can benefit a housewife and the whole family.

However, when the show is over, they have the impression that a freezer is a wonderful gadget to have, providing you should find yourself with five or six hundred dollars for which you had no other use. And, logically enough, those are the kind of people to whom I've sold a majority of my freezers. In a number of cases I've pounded home the dollars and cents advantage of a freezer, but I dare say that my record is typical of the national sales pattern of freezers. We have knocked over a part of the luxury market, but haven't touched the real market at all.

One thing my experience has established is the fact that good pictures either movies or a visual aid series, will do more to educate and awaken people to the possibilities of freezers than all the conversation in the world. My request is for better films. I'm not hunting for something that will do my selling for me but for a

means of making my sales story as vivid, dramatic, and hard hitting as possible, and I know what a good technicolor movie can do. I've used Frigidaire's "Frozen Freshness" to a good advantage several times.

I want a film that I can use in my Jam Handy, or a 16 mm. projector, that will dramatize, not only the many interesting possibilities of a freezer, but also the dollars and cents reasons why every family should have one. "If you can't afford it, you can't afford to be without it," might make a good motto.

With production caught up in almost every line of appliance and refrigeration, both commercial and domestic, the greatest fields for the specialty salesman are freezers, dryers, and ironers; in that order. I don't sell dryers and ironers, but I do sell freezers and if the manufacturers will give me better sales ammunition, I'll sell more of them than I've ever sold before.

ELDON SHIRES

ALLOCATIONS FOR ICE INDUSTRY ARE WEIGHED

National Association of
Ice Refrigerator Manufacturers
Washington, D. C.

Editor:

There is an error in the third paragraph of the article in the fifth column (page 1) in your issue of Oct. 25, in which you say that the Ice Refrigerator Manufacturers did not even receive consideration of their request.

The request is being considered, but was not made in time to be included in the first quarter allocations of 1949.

I have called attention to the U. S. Department of Commerce, to your article and they assume that it was made up from the release of Oct. 12, which does not say that the Ice Refrigerator Industry received no consideration.

I am sure this statement was unintentional on your part as your office is usually correct in its statements and fair to all industries.

E. G. VAIL,
Secretary

ARE APPLIANCE MFRS. USING F.O.B. PRICING?

National Cooperatives, Inc.
343 South Dearborn St.
Chicago, Ill.

Editor:

During the past few years, I have noticed a trend for large appliance companies to have a nationwide price on their appliances which indicated they have a Freight Equalization Plan. I believe that on electric refrigerators and electric ranges, General Electric, Westinghouse, and Frigidaire have a one-price policy in the United States.

Considering the Supreme Court's recent decision on cases involving prices issued as of a base point, I am wondering particularly what the appliance industry is doing in regard to Freight Equalization. I have not read recently that any of the above mentioned companies have changed their policy, but would like to know if you have information indicating that some manufacturers have changed their policies back to an F. O. B. factory basis in the past year, or if they intend to do so because of the recent Supreme Court cases.

We would appreciate any information you can give us on this subject including the names of any companies that you know have changed their policy or plan to change.

J. F. BLACKBURN,
Appliance Department

Answer: Those manufacturers of appliances who have featured a "national" retail price have not made any changes yet, as far as we can determine. Some new models introduced since the Supreme Court decision on the basing point system have carried a national price.

RUGGED and RELIABLE!

BULLETIN 709SP
Single Phase Across-the-Line Motor Starters

Do you need a single phase starter that can take it? The Bulletin 709SP solenoid starter is your answer. Its double break, silver alloy contacts never need cleaning or dressing. Its

simple, efficient mechanism will hold in during line voltage fluctuations. A starter you can install and forget! Write today. Allen-Bradley Co., 1313 S. First St., Milwaukee 4, Wisconsin.

ALLEN-BRADLEY
QUALITY
MOTOR CONTROL

Acme FREON OIL SEPARATORS

Double filter for double efficiency. Maximum separation of oil from refrigerant vapor. Six models meet all requirements for installations from 1/4 HP up to 10 HP. All installations can be serviced at moderate cost. Underwriters laboratories approval seal on each model.

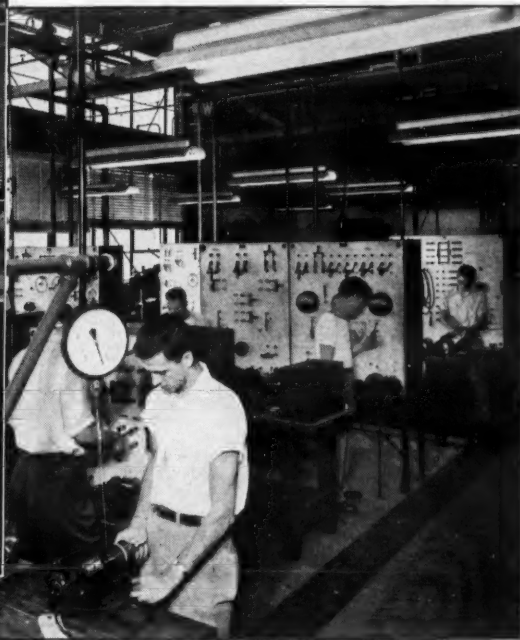
ACME INDUSTRIES, INC.
Jackson, Michigan
Representatives in all principal cities

Tell it to our draft board..



Motor design starts on the drafting board, to predetermined requirements.

Sample motor, before shipment to customer, receives laboratory tests.



and get uniform performance to fit your application,
with a motor that's *Twin-gineered*

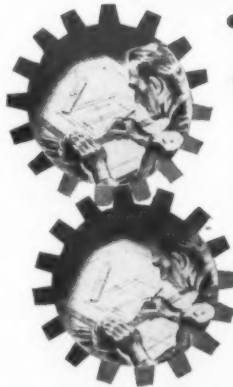


1/20 to 5 H.P.
AC and DC

Emerson-Electric's "draft board" is always in session... an efficient, smooth-gear organization, competently staffed and equipped to solve the design problems relating to power applications for motor-driven appliances.

The "draft board" is eager to collaborate with your engineers... to combine your knowledge of product design with our know-how acquired in 58 years of motor design, application, and manufacture. Such collaboration—*Twin-gineering*, we call it—is likely to save you much costly engineering "back-tracking" later, and may suggest manufacturing short cuts or improvements which will give your product added market advantages even beyond those assured by a trouble-free, soundly-engineered power application. There is no charge for Emerson-Electric design and planning services... your inquiry is invited on this first vital step in *Twin-gineering*... the successful system that meshes engineering minds to produce better motors for the job at hand.

Here's how *TWIN-GINEERING* "follows through" to give you the perfect power application:



- **DESIGN SERVICE:** Our "draft board," in consultation with your own engineers, plans the best power application for your particular need.
- **PRODUCTION:** An Emerson-Electric Application Engineer, assigned to each project, personally directs the writing of specifications and performance requirements, from which production is planned.
- **QUALITY CONTROL:** Rigid testing of both materials and motors is carried out by inspectors in accordance with instructions established by the Application Engineer.
- **DELIVERY AND ORDER CONTROL:** With the benefit of adequate facilities, production of your order is handled on a predetermined delivery schedule, geared to your requirements.
- **FIELD LIAISON:** The Emerson-Electric Territorial Representative, provides direct liaison on all phases of the power application, from inception to final delivery and marketing of the product.

THE EMERSON ELECTRIC MFG. CO.
ST. LOUIS 21, MO.

EMERSON ELECTRIC
MOTORS • FANS • APPLIANCES

For Trouble-Free Drying PA 100

DAVISON Refrigeration Grade SILICA GEL
Processed especially for the dehydration of refrigerants



Ask your jobber for dehydrators charged with PA 100, Davison Refrigeration Grade Silica Gel... he also stocks it in the can with the blue label.

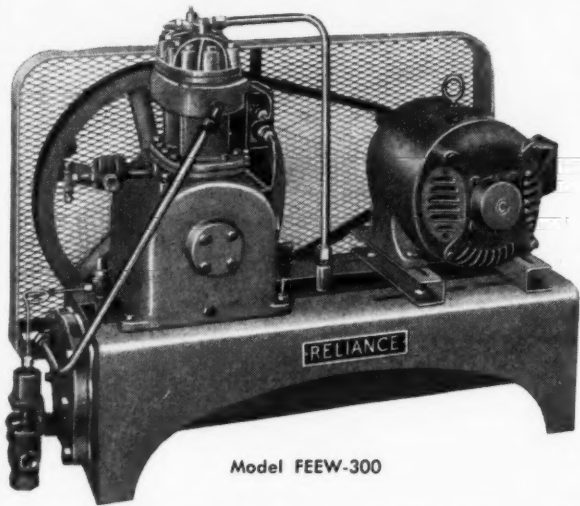
PA 100 gives you 7 big advantages that point the way to freedom from drying problems. 1. maximum capacity... 2. instant action... 3. removal of acids and corrosive compounds... 4. freedom from caking... 5. freedom from channeling of refrigerant... 6. will not attack metals or alloys... 7. dust-free drying.

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BY ONE OF AMERICA'S OLDEST MANUFACTURERS



Model FEEW-300

MODEL ILLUSTRATED IS 3 H.P. WATER COOLED FREON

NOW AVAILABLE IN ALL SIZES

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Reliance Refrigerating Machine Co.

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Manufacturers of Refrigerating Equipment for over 30 years

RELIANCE LONG-LIVED UNITS FEATURE:

1. SIMPLICITY
2. QUALITY MATERIALS
3. SUPERIOR VALVE DESIGN
4. SHELL & TUBE CONDENSERS, CLEANABLE
5. EFFICIENCY

Having covered the previous Rema-RSES educational conferences and exhibits in considerable detail, so that readers by now should be very familiar with the nature of these events, the NEWS is confining its coverage of the recent Midwest conference to the pictures on this and the following page, which pictures provide an idea of the excellent attendance, and also show some specially prepared exhibits which were not depicted previously. Many of these exhibits are available for small, local educational meetings.

New Location of Refrigeration Supply Doubles Floor Space

BILLINGS, Mont. — Refrigeration Supply Co. has moved to new and larger quarters at 17 N. 31st St. here, Norm Sulenes, manager, has announced.

The new air conditioned building more than doubles the former floor space occupied by the firm and makes it possible for trucks to drive right into the building for loading and unloading, Sulenes said.

Conover To Represent Marcus Transformer In Eastern Area

HILLSIDE, N. J. — Appointment of Lew C. Conover of Philadelphia as representative of the Marcus Transformer Co., Inc. here, in eastern Pennsylvania, Delaware, Maryland, Washington, D. C., and southern New Jersey has been announced by Alvin Marcus, president of the company.

An Industry That's Still Eager To Learn



This general view down the aisle of one of the exhibition halls in the Hotel Sherman, Chicago, reveals the kind of crowds that attended the Midwest Rema-RSES educational conference and exhibit. The Chicago conference was third in the series of such meetings, the fourth being scheduled for Birmingham, Ala., Feb. 4-6.



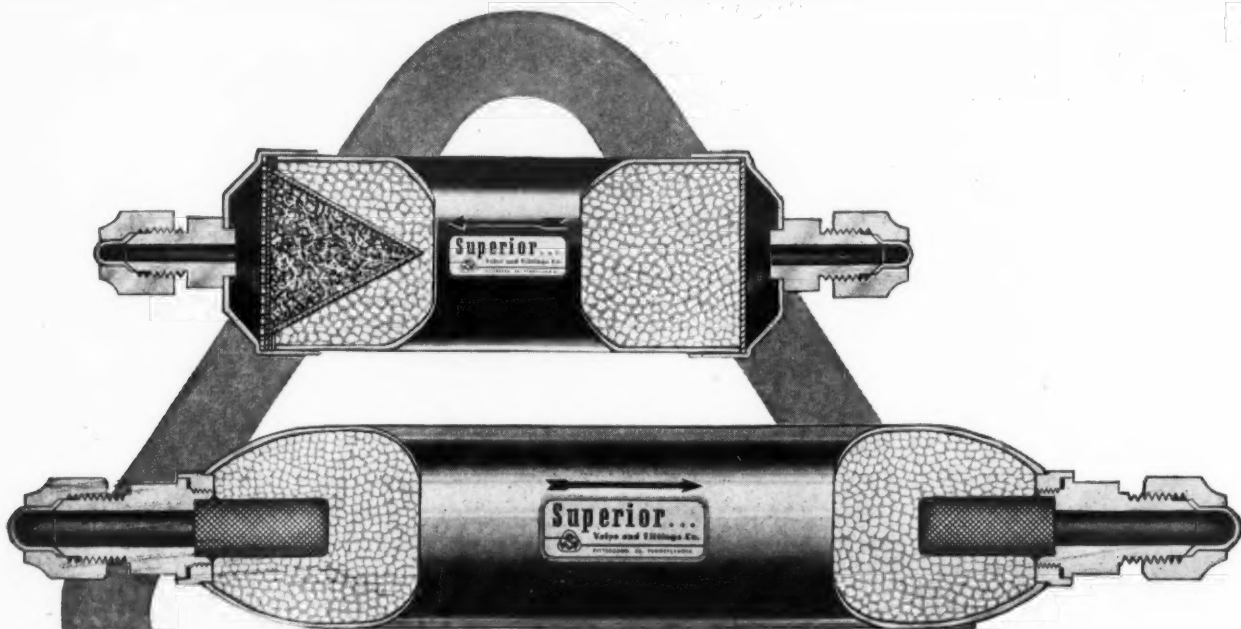
While crowded conditions often prevailed as in this picture of the Peerless of America, Inc. booth, which had an operating display of a plate coil, manufacturers had many opportunities to discuss individual problems with the service engineers and contractors attending the conference.



Glass-walled models of operating units are widely used in the educational exhibits. Here S. C. Segal of Kramer Trenton Co. (facing camera) explains the workings of a newly introduced evaporative condenser, which will handle systems as small as 2-ton capacity. George Frie and John F. McKinley, Jr. learn about the operation of this differently designed evaporative condenser, which has no nozzles and uses bare tube coils.



Kelvinator's "transparent" refrigerator, revealing design and construction detail, draws a lot of attention from conference exhibitors. Of particular interest are the runs of evaporator and condenser tubing, which are almost impossible to depict other than through the use of a transparent cabinet.



A NEW Line of SUPERIOR DRIERS

The DRIERS with the *Plus Features*

- ★ MODERN DESIGN
- ★ EFFICIENT OPERATION
- ★ REFILLABLE AND NON-REFILLABLE TYPES
- ★ ALL BRASS CONSTRUCTION

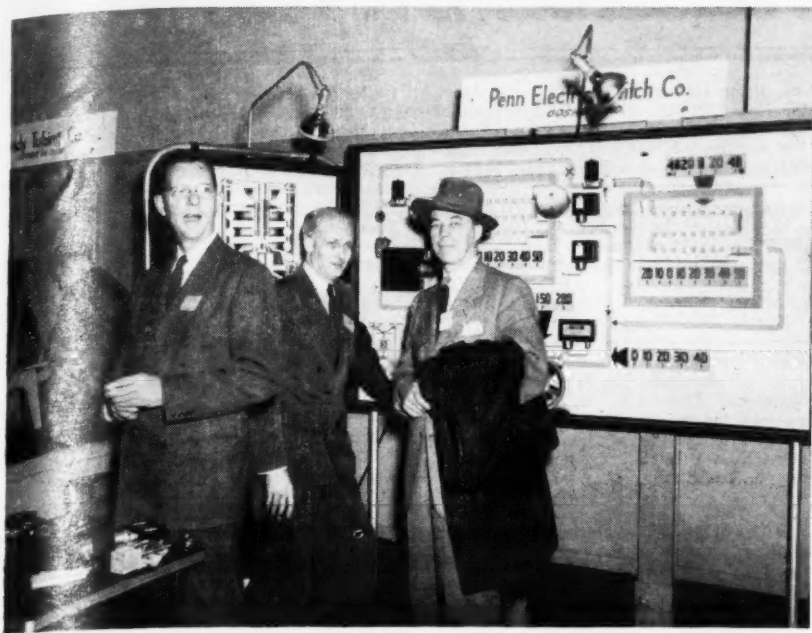


For complete details and specifications on the New Driers and other Superior products, ask your Wholesaler for a copy of our NEW Catalog R3.

(or a copy may be obtained by writing to us)

Superior Valve and Fittings Co.
1309 WEST LIBERTY AVE. PITTSBURGH 26, PENNA.
OFFICES IN PRINCIPAL CITIES STOCKS CHICAGO (3) LOS ANGELES (15) JOBBERS EVERYWHERE

An 'Extension Course' for Servicemen



In this large lighted panel-board type of exhibit, Penn Electric Switch can show how various types of refrigeration system controls are responsive to temperature and pressure changes. Contrived so that an indicator moves along until a pre-determined cut-in or cut-out point is reached, the control then responds and those viewing the exhibit get the picture of how the control operates. In this picture are Ed Smith and Bob Luscombe of Penn Switch, and Clyde Ploeger, Servel engineer.



Walter D. Scovill (left), St. Louis contractor, queries W. J. "Bill" Aulsebrook, sales manager of Servel's electric refrigeration division, regarding a Supermet unit, while in the background Nelson Bloomenstein (left) checks a test-cord for hermetic units display with George S. Eager, Servel service manager.



Claude Brunton (right) who came from West Virginia to attend the meetings, checks over the Grand Rapids Brass Co. exhibit board which describes various refrigerator hardware parts, with W. B. Jones of the company on hand to offer any needed additional explanation.



E. J. Seaton (left) and M. J. Helland (right), both from Rockford, Ill., listen intently as J. W. Thomas of Brunner Mfg. Co. describes operation of the company's compressor control assembly, shown on the table.

Tyler Names Rhinehart General Service Manager

NILES, Mich. — Appointment of Dewey Rhinehart as general service manager for the Tyler Fixture Corp. was announced by the company recently.



Dewey Rhinehart

Rhinehart was formerly with Airtemp Division of Chrysler, and Murphy & Miller, Inc. of Chicago, a firm that specializes in handling installations for any manufacturer of refrigerated products. Rhinehart is said to have built up the first independent service organization in Murphy & Miller.

Wholesaler Warns of Tighter Metals Supply

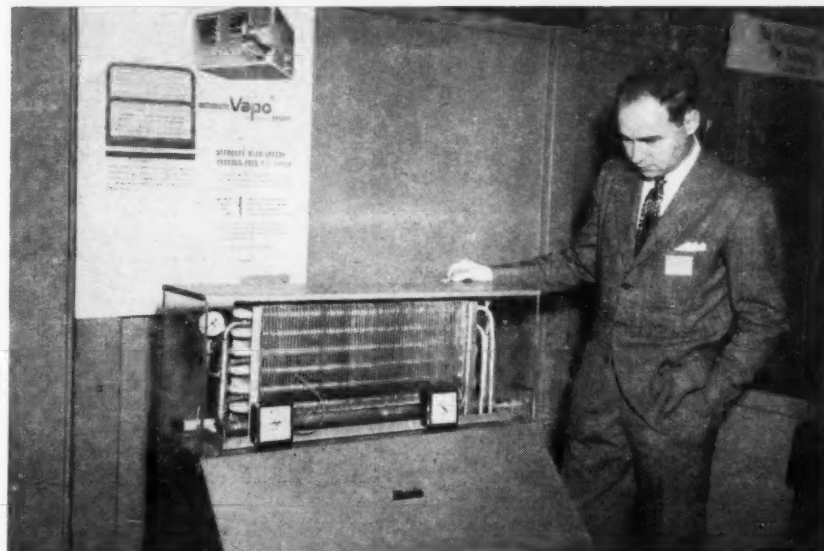
DETROIT—Reviewing the general outlook on basic materials in a recent bulletin, a prominent refrigeration equipment wholesaler noted that the steel and copper situation "is becoming more critical every day."

"One compressor manufacturer has already advised us that their replacement bodies should be held for service replacements only, and not for outright sale," the wholesaler reported. "There is no question but what the armament program is going to bite into the domestic supply."

With a strike at the mines of the largest supplier of raw copper, "the copper situation has, overnight, changed from one of moderate scarcity to one of extreme scarcity, and delivery of copper from mills is now on a 90-days-up schedule," he said.

"Quotations on copper this week (Nov. 5) on the New York market were very strong, and if wage increases are granted to the miners of copper ore, there is no question but what copper will be higher."

New Devices Make 'Show-How' Easier



Here's a neat "package" to demonstrate the operation of a commercial refrigeration coil, as used in Marlo Coil Co.'s exhibit at the Midwest educational conference and exhibit. F. G. Meyers rests his hand on the glass case that holds the coil, and the thermometers that are used to show temperatures in various sections of the coil, and the pressure gauge. Condensing unit is housed in the enclosed stand.



Alco Valve Co., one of the first firms to make use of the "glass evaporator" for demonstration purposes, had a new model at the exhibit. It was designed to reveal the operation of a two-temperature refrigeration system and also to reveal the workings of several kinds of control devices.

THE FOGEL TRIPLE SHELF "OPEN STYLE" SELF-SERVICE DISPLAY CASE

MODEL DCO-6

The Shopper's Choice . . .

IS YOUR KEY TO "BIGGER SALES"

Millions of shoppers, throughout the world, have indicated their choice for "Self-Service" . . . and now, to meet this demand, FOGEL'S offer dealers the "Profit Opportunity of the Year" with an entirely NEW—

CONTINUOUS OPEN-STYLE DISPLAY CASE FEATURING 3 Giant "Fully Refrigerated," Full-Vision Display Shelves

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Dairy Products, Meats, Produce, Beverages, Candy and other Perishables.

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WRITE—WIRE—PHONE . . . TODAY!

for full details concerning the valuable FOGEL Sales Franchise. Sign up for greater profit opportunity . . . NOW! Be the first to sell this outstanding case, and other top quality FOGEL equipment, in your territory. Use coupon for immediate action.

Remember it's "Continuous" and "Continuous" means repeat sales. New sections can be added (without the usual in-between-ends that obstruct view and waste space) to meet your customers expanding needs.



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Please send me, free of charge, information checked below:

- ☐ Detailed information Triple-Deck Display Case.
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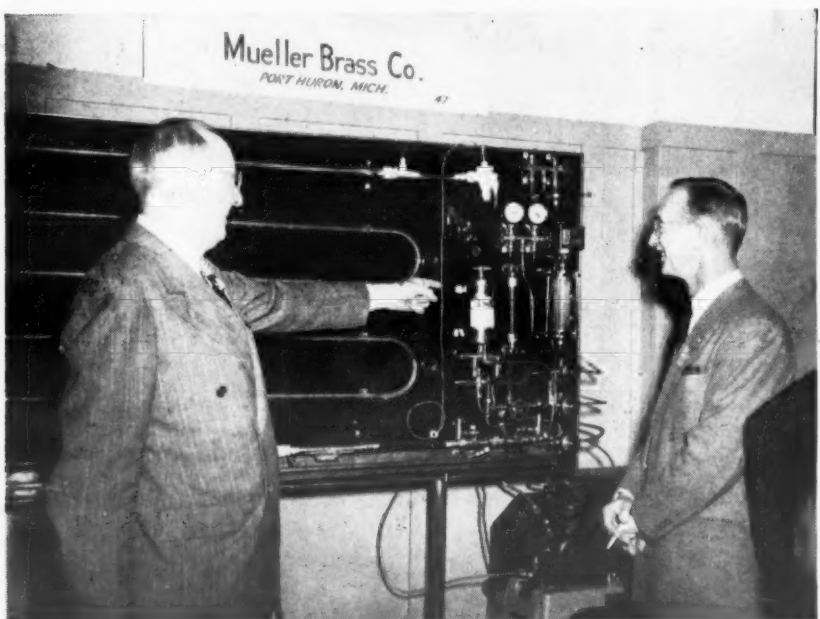
Cutaways, Hook-Ups Reveal Operating Details



Jack Miller (left) of Lehigh Mfg. Co. goes into detail as he answers some questions regarding condensing units brought up by Charles E. Motti of Grand Rapids, Mich., while another interested visitor eavesdrops. The Lehigh unit was cutaway so that not only the compressor, but control and condenser sections could also be seen.



Operating parts of Ranco controls are "spread out" on display boards so that servicemen can learn to recognize the parts when they run into them in their field work. Cards signed at the Ranco booth showed that nearly 1,000 visitors had examined the exhibits during the conference.



This refrigeration system rigged up by Mueller Brass Co. has even more accessories than those loaded onto new automobiles sold since the war, but in this case it's for demonstration purposes only. Paul Domke of Mueller points out such items as a midjet purger, gauge manifold, sight glass, driers, and assorted valves to Lou Snell, parts and supplies wholesaler from Dallas, Texas.



Visitors give close inspection to the Automatic Products Co. exhibit featuring a liquid cross-charged expansion valve operating in a solid block of ice, the hook-up being designed to demonstrate the feature of "positive control" under all conditions claimed for the product.

CLASSIFIED ADVERTISING

RATES for "Positions Wanted" \$2.50 per insertion 50 words or under. 5¢ ea. additional word.

RATES for all other classifications \$5.00 per insertion 50 words or under. 10¢ ea. additional word.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other addresses by actual word count. Please send payment with order.

POSITIONS WANTED

SELECTED GROUP of men, graduates of well-known trade school, desire employment in refrigeration field. Will travel anywhere. Qualified in domestic and commercial refrigeration. Reliable. Placement Dept., EASTERN TECHNICAL SCHOOL, 888 Purchase Street, New Bedford, Mass.

JR. ENGINEER, capable of survey, design, estimating and layout of all types of heating, refrigeration, and air conditioning systems. Recent graduate of co-operative college with some experience in this field. Willing to travel. Write BOX 3031, Air Conditioning & Refrigeration News.

MECHANICAL ENGINEER with six years experience in heating and air conditioning desires permanent position as application engineer with progressive dealer or distributor. Able to design, layout and supervise heating and air conditioning systems. Also some service experience. 33 years old. Good habits. Address BOX 3033, Air Conditioning & Refrigeration News.

EXPORT MANAGER (or assistant to manager) with exact knowledge of international markets; widely travelled; 5 modern languages; first rate references—available. Letters under BOX 3037, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

DE HART REFRIGERATION & Air Conditioning Co. selling nationally known products in central Oklahoma. Unlimited possibility a good commercial refrigeration salesman. Compensation drawn against commission in respect to ability. Give education, age, experience and former employment. Write DE HART'S, 1315 Minn. Ave., Chickasha, Okla.

ORLANDO, FLORIDA sunshine. Opportunity for an experienced commercial refrigeration salesman who can sell. This is a lucrative position for a go-getter, who is interested in year around summer weather, with one of Florida's most aggressive Frigidaire distributors. WATERS EQUIPMENT CO., 1215 West Central Ave., Orlando, Florida.

SALESMEN FOR Hussmann distributor in San Diego, California. Must have a proven record and able to furnish highest references. For such a man we have a most attractive proposition. WRIGHT REFRIGERATION, INC., 4025 Pacific Highway, San Diego, California.

SALES REPRESENTATIVE wanted by well established midwest manufacturer of automatic control valves, fittings, driers and accessory items for refrigeration and air conditioning. Territory open is metropolitan New York City and New York State. Salary, bonus and expenses. Write full particulars including past experience, record of employment and salary requirements. BOX 3019, Air Conditioning & Refrigeration News.

OLD ESTABLISHED York distributor located in North Carolina has opening for experienced commercial refrigeration sales manager to assume complete responsibility for formulating and executing sales activities. Only man thoroughly experienced in refrigeration and air conditioning who has proven executive and sales ability will be considered. The man we want now has responsible sales managerial position and is successful but wants to go further with an organization with unlimited possibilities. Liberal salary plus override on sales volume. Give full details of experience and qualifications. Interview will be arranged. BOX 3035, Air Conditioning & Refrigeration News.

OLD ESTABLISHED York distributor located in North Carolina has opening for experienced refrigeration and air conditioning sales engineer. Must be capable of passing examination state board of engineers and securing license in air conditioning engineering. If not now a resident of N. C. interim license may be arranged pending examination. Write stating experience, qualifications, and salary and commission expected. BOX 3036, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

SURPLUS "FREON" valves! 1,500 new clean valves priced under jobbers cost, freight prepaid. Kerotest # 461S 2 1/4" wing-cap globe @ \$19.76. #574S 1 1/4" wing-cap globe @ \$8.55. #6981S 3/4" angle packless @ \$3.00. #2355 3/4" receiver valves @ 75¢. #51S300 3/4" relief @ \$3.45. Mueller 3/4" flare packed globe @ \$5. ANCHOR SUPPLY CO., 1742 Fourth South, Seattle 4, Wash.

ELECTRIC REFRIGERATORS. Immediate delivery—all standard makes—fully reconditioned & guaranteed. Wholesale only. From \$49 up. We buy & sell as-is refrigerators. APPLIANCE PROD. CORP., 59 Crosby St., NYC 12, N.Y.

RECORDING THERMOMETERS. Bristol, remote 7 day electric, \$69. Thermostats, Merco, minus 10° to plus 40°, \$15. Heat exchangers, Acme, 3 ton @ \$27; 2 ton @ \$20. Evaporative condensers, Marlo E C 5, \$335. Tunnel blast freezer complete 1,800 basic rating, \$535. New 1 H.P. to 7 1/2 H.P. water cooled Universal and Copeland at less than distributor's cost. Used—Westinghouse 60 ton condensing unit—bargain! 36" x 66" Jamison double

batton automatic close doors with track heads for 72" track, 1 1/2" cork board insulation at \$95 each. All new in original factory crates. BIMEL COMPANY, 2600 Colerain Ave., Cincinnati 14, Ohio.

FOR SALE: Three 70 gal. Mills, model #60, H. Master hardening cabinets, one 1 1/2 H.P. Mills condensing unit, one 3/4 H.P. Mills condensing unit. Like new complete for \$1200.00. THE BORDEN COMPANY, Cabinet Division, 1529 West Van Buren St., Chicago, Illinois.

SEALED UNITS rebuilt and exchanged. Prompt service on Coldspot (sealed & semi-sealed), Chieftain, Gale, Tecumseh, Norge and many others. One year guarantee. Write for price list and shipping instructions. BRIGHTON, 3906 Joy Rd., Detroit 6, Michigan.

MILLS FREEZERS—several, model S-2515-40, 2 1/2 gallon freezers with 40 gallon hardening cabinets. New in original crates. List \$2,965.00; will sell for \$1,500.00 each. 30 gallon mix cabinets \$100.00 each F.O.B. our warehouse. Emery Thompson—one new 10 gallon freezer stainless steel finish, 90 gallon hardening stainless steel top, white enamel sides. No compressor. Make offer. Inquire CAPITOL REFRIGERATION COMPANY, 3438 14th St. N.W., Washington 10, D. C.

FOR SALE—rebuilt and guaranteed ammonia condensing units with retubed condensers, units repainted and like new. Lipman 2 1/4 x 2 1/4, 2-cylinder units, 2 HP. @ \$390.00. York 3 x 3, single cylinder units, 2 HP. @ \$390.00. Frick 3 x 3, single cylinder units, 2 HP. @ \$390.00. York 3 x 3, double cylinder units, 5 HP. @ \$590.00. York 4 x 4, double cylinder units 7 1/2 HP. @ \$800.00. Frick 4 x 4, double cylinder units 7 1/2 HP. @ \$800.00. York 6 x 6, double cylinder units 20 HP. @ \$1,500.00. Frick 5 x 5, double cylinder compressors @ \$700.00. York 6 1/2 x 6 1/2, double cylinder compressors @ \$800.00. New Baker ammonia compressors in stock, all sizes. CONNECTICUT ICE MACHINE CO., INC., South Norwalk, Conn.

MERCHANDISE FOR sale. Brand new freezer plates, all or any part: 374 19" x 30" Yoder plates: @ \$3.35 each; 4 19" x 36" Yoder plates: @ \$4.35 each; 112 19" x 72" Yoder plates: @ \$7.00 each; 131 19" x 32" Dole plates: @ \$3.75 each; 1 19" x 54" Dole plates: @ \$5.35 each; 44 19" x 78" Dole plates: @ \$8.00 each. All Yoder plates fitted with two 1/2" male copper tube connections and one 19" end. All Dole plates fitted with two 1/2" female pipe connections on the 19" end. All plates for use in vertical installations. Send checks or deposit with order to CROWN REFRIGERATOR CORPORATION, Metuchen, New Jersey.

LOOK! LOOK! look! "Freon" cylinders \$2.00 ea. 10 lb. capacity, 4" by 26", condition good. "Freon" valves 89¢ ea. Type H, 3/4", Bastian & Blessing. New and unused. ANTHONY P. JANOSIK, Canterbury E-4, Camden, N. J.

CLOSING OUT 2 new bottom half of Chrysler, self-contained air conditioning unit, with copper condensers, model MD5 HC high side, \$375.00. Also 20 H.P. Wagner motors 208V, 60 cycle, 3 phase, 1,750 RPM, frame 364, type R.P. 5, \$180.00. All equipment is new and in crates. All pieces F.O.B. METRO COOLING CO., 2619 Atlantic Ave., Brooklyn, N. Y.

ICE PLANT—15 ton Frick—army surplus, unused, in original export crates, located in Santa Fe, New Mexico. Write for details. Jamison walk-in doors complete with two vestibule doors—\$50.00 each. Prefabricated refrigerator warehouses, government surplus, with refrigeration units at close out prices. MOORE & HANKS COMPANY, 2632 Humboldt Street, Los Angeles 31, California.

SUBJECT TO prior sale: Hermetic Chieftain units—1/4 H. P., \$44.50; 1/2 H. P., \$48.50. Other well known hermetics: 1/4 H. P., fan cooled, \$52.50; 1/2 H. P., fan cooled, light duty, \$57.50; 1/2 H. P., fan cooled, heavy duty, \$59.50; 3/4 H. P., fan cooled, \$69.50. Open units, standard makes: 1/4 H. P., \$54.50; 1/2 H. P., \$64.50; 3/4 H. P., \$84.50. Above prices quoted on lots of six. All open units are 60 cycle, single phase. All above units new, carrying factory warranty. Write for unit list. Penn type 260 Apol low pressure control, \$4.25. Penn type 262 Apol high pressure control, \$4.25. Minneapolis-Honeywell dual pressure control, \$4.50. Detroit Lubricator low pressure control, \$4.25. G. E. blower fan motor with 10" fan, \$4.50. Superior heat exchanger, 13" over-all, 3/4" x 3/4", \$4.75. Mueller heat exchanger, 14 1/2" over-all, 3/4" x 3/4", \$5.00. Kramer Trenton panel blower complete, 1/2 ton, \$30.00. Superior master drier 1/4" flare x 1 1/4" x 5 1/2", 75¢. U. S. "Freon" gauge, 4 1/2" face, 30" vac., 150# or 300#, with corresponding temp. scale with red warning hand and mounting holes, \$4.50. Scientific Instrument Co. dial thermometer, 4 1/2" face, minus 40 to plus 120, 5 ft. tube, \$4.50. 1 set U. S. "Freon" gauge, 2 1/2" face, 100# compound and 300# pressure, temp. scale, recal. and mounting holes, \$3.50. Ranco type KW-412 cold control complete, \$4.00. American Injector oil separator, 1/2 ton, \$3.50. Cold

plates: 1—30" x 55", 2—30" x 64", 3 to a set, \$35.00. 6—5 lb. cans Davison refrigeration silica gel, \$6.00. 1—5 lb. can Davison refrigeration silica gel, \$1.10. Crouse-Hinds vapor proof refrigerator light, with guard, \$2.50. WALTER W. STARR, 1207 George Street, Chicago 13, Illinois.

WE HAVE four (4) Panelectric ice cube makers left. Latest model made. Still in crates. Will sell one or all at \$100.00 each. STEWART DISTRIBUTING COMPANY, 1019 East Broadway, Louisville 4, Kentucky.

NEW FEDDERS 1/2 and 3/4 HP window air conditioners still in shipping crates \$220.00 and \$250.00. Only ten left. Write BOX 3029, Air Conditioning & Refrigeration News.

FOR SALE, domestic and commercial refrigeration and air conditioning business in southern California. Inventory, plus \$1,000; approximately \$32,000. Good lease. Cheap rent. Complete machine and service shop. Dairy, winery, citrus and farm territory. Profitable all year business. Owner retiring. Terms to right party. BOX 3032, Air Conditioning & Refrigeration News.

SURPLUS NEW direct current 115 volt motors: 33 1/2 H.P. Century 1,750 Rpm, \$39.00 each; 8 3/4 H.P. Wagner 1,750 Rpm, \$53.00 each; 6 1 H.P. Century 1,750 Rpm, \$98.00 each; 9 1 1/2 H.P. Century 1,750 Rpm, \$110.00 each; 5 2 H.P. Wagner 1,750 Rpm, \$123.00 each. Freight prepaid orders over 5. Extra 5% discount 10 or over. BOX 3034, Air Conditioning & Refrigeration News.

FOR SALE: well established refrigeration and appliance sales and service establishment in northern Wisconsin. Building for sale or lease includes living quarters, garage, warehouse, shop, office and store. Virgin R.E.A. territory. Over \$55,000.00 gross yearly. Reason for selling, poor health. Stock, equipment at inventory cost. BOX 3038, Air Conditioning & Refrigeration News.

BUSINESS OPPORTUNITIES

MIAMI, FLORIDA—a leading refrigeration, air conditioning, television, and appliance sales and service establishment—in same Miami location ten years. Grossed \$150,000 and netted \$20,000 last year. Will sell for \$7,500 to cover truck, equipment, and improvements plus merchandise inventory at cost—about \$8,000. BOX 2992, Air Conditioning & Refrigeration News.

SACRIFICE COMMERCIAL and air conditioning business within fifty miles of Chicago. Very little competition. Net profit between \$15,000 and \$20,000 per year. Complete audit available. Top case and compressor franchises. Price \$2,000 plus inventory which can be reduced. Other interests force sale. BOX 3026, Air Conditioning & Refrigeration News.

MANUFACTURERS' AGENTS—We offer a line of frozen food, ice cream, and dairy display cabinets. Line well established. Enthusiastically accepted everywhere presented. Agents now working will testify to acceptance and repeats. Write your experience, territory now covered, lines now representing, and references. BOX 3030, Air Conditioning & Refrigeration News.

FOR SALE—established appliance sales and service business in a community situated in one of the largest oil fields in west Texas. Good franchises, Hotpoint, General Electric, Crosley and others. Only firm with service department within 35 miles. Entire building and lot including living quarters, truck, fixtures and all servicing equipment \$4,750 plus merchandise inventory around \$5,000. Owner forced to leave due to wife's illness. BOX 3039, Air Conditioning & Refrigeration News.

REFRIGERATION AND household appliance service shop in the Calumet region of Indiana for sale reasonable. Reason for selling is sickness. Doing over \$3,000.00 monthly. Several dealer contracts and factory authorizations. Low rental in large shop on U. S. highway. Tools and pickup truck included. Will inventory stock. BOX 3040, Air Conditioning & Refrigeration News.

TOP FLIGHT ENGINEER

Large national manufacturer of low temperature equipment has excellent opening for trained engineer. Administrative experience essential. Real opportunity for advancement. Salary commensurate with qualifications. Send resume. All replies strictly confidential.

Write Box 3028, Air Conditioning & Refrigeration News

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450 West Fort Street, Detroit 26, Michigan

Gentlemen: Send the NEWS for one year.

☐ \$5 enclosed ☐ Bill me ☐ Bill the company

Name

Company

Street

City

Zone

State

Refrigeration Problems

and their Solution

by Paul Reed

For Service and Installation Engineers



Paul Reed

Absorption-Type Refrigeration (9)

The Servel absorption unit is a "hermetic unit" in much the same manner that the term "hermetic" is used with the electric compression sealed unit, because the vessels, tubes, and other portions of the system containing refrigerant, are sealed at the factory and are not accessible to the repairman in the field.

If the serviceman definitely determines that the unit itself is at fault, then the unit must be exchanged and the defective one must go back to the factory just the same as any other "hermetic" unit.

Since the unit itself consists only of tubes, vessels, heat exchangers, etc., in which there are no moving parts, about the only thing that can happen to the unit proper is for a leak to develop, causing some of the charge to be lost.

Except for the charging valve, all joints are welded and extraordinary care is taken in testing for leaks. One of the leak-tests uses a test pressure of 1,000 p.s.i. The percentage of "leakers" is quite small, even after several years.

Thus the service engineer will find it safe to assume, in the vast majority of cases of improper refrigeration with the Servel refrigerator, that the unit is OK and that the fault lies in the operation of the pressure regulator, burner, or thermostat, or that the flues are dirty.

UNIT MUST BE LEVEL

There is one condition, however, that may cause unsatisfactory operation, even though the burner and thermostat are fully operative, and the flues are clean. That is the level of the refrigerator.

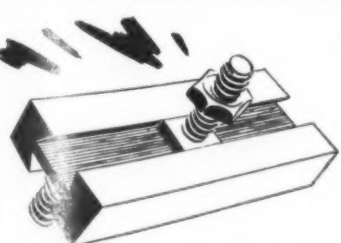
In studying the operation of continuous cycle of the Servel system it will be seen that flow of the aqua is possible because of the difference in level or "head" between the generator and the absorber. If the refrigerator is not level, this difference in aqua "head" inside the system will be disturbed and the operation of the system adversely affected. Therefore, the refrigerator must be installed level—not by visual estimate, but checked with a spirit level. An out-of-level condition will affect some of the other parts of the system, also.

Just as the compressor is the heart of the compression system, the burner, the compressor's counterpart, is the heart of the absorption system.

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Through it, the energy on which operation depends, is introduced into the system; so the proper functioning of the burner is all-important.

GAS PRESSURE REGULATOR

But before going into the matter of the burner itself, let us first take note of the gas pressure regulator which is in the main gas line just ahead of the burner.

The purpose of the pressure regulator is to maintain a constant pressure to the burner. Otherwise, fluctuations in the gas pressure in the gas supply lines would cause a variation in the size of the flame that would make it difficult if not impossible to control temperatures; also, pressure fluctuations would upset the mixture of gas and air in the burner and cause odors and dirty flues.

The gas pressure regulator is set to deliver a pressure of about 2 to 3 in. of water pressure, and is adjustable. Gas pressures should be actually checked and not guessed at. A manometer may be used for this purpose.

THE GAS THERMOSTAT

After the gas leaves the pressure regulator, it passes through the gas thermostat before it can reach the burner. The gas thermostat is the remote bulb and diaphragm type, and operates much the same as an electric thermostat, except that instead of turning an electric switch on and off, the gas thermostat turns a valve on and off.

But this does not mean that the gas thermostat turns the gas completely off from the burner. If it did, the burner flame would go out. The valve in the thermostat is bypassed, allowing a small amount of gas to flow to the burner at all times. This small amount of gas keeps the burner flame on at all times regardless of whether the thermostat is calling for refrigeration or not.

As long as the refrigerator is cold enough, the valve in the thermostat is held closed by a spring, but some gas by-passes it and flows to the burner, keeping the burner lighted with a small flame that is called the "minimum" flame.

When the refrigerator begins to warm up, the diaphragm of the thermostat pushes its valve open (against the spring that normally holds it closed) and allows the full amount of gas to flow to the burner. The burner flame then gets much larger and this full flame is called the "maximum" flame.

REFRIGERATION IS CONTINUOUS

It is important to know that refrigeration does not stop when the thermostat closes its valve. The minimum flame, although small, is enough to keep the system in operation, although at a low rate. If the size of the minimum flame is correct, it will furnish just about enough refrigeration to offset heat leakage in a cool room.

If it is too large, it may supply too much refrigeration for a cool room, especially overnight when the refrigerator is not opened; and the refrigerator may get too cold. Therefore, the size of the minimum

flame must be adjusted with some care.

From the gas thermostat the gas goes to the burner, where it burns either as a minimum flame (when the thermostat is "off") or as a maximum flame (when the thermostat is "on," calling for refrigeration).

THE SAFETY VALVE

Suppose that the gas supply should be shut off, or the gas pressure drop so low that the minimum flame would go out and then pressure should come back on, or that a gust of air should blow the flame out. Then gas would be released into the room, which would create a fire hazard or a toxic danger to the occupants. So the burner is equipped with a safety shut-off.

This safety shut-off consists of a valve in the inlet of the burner, that is connected to a bi-metallic disc. The disc is placed just beside the flame so that when the gas is actually burning the flame heats the disc and the disc pushes the valve open.

If, for any reason the flame goes out, the disc cools very quickly and snaps in the opposite direction and closes the valve.

ADJUSTING THE MINIMUM FLAME

Therefore, the minimum flame must be high enough that it keeps the disc hot enough that it will not turn off the safety valve in the burner. To keep the disc hot, the minimum flame must just barely touch the concave part of the disc.

Since the disc must be hot in order for the burner safety valve to be open, and the valve must be open to permit a flame that will heat the disc, a separate flame must be used to heat the disc, in order that it will open the burner safety valve, so that the burner can be lighted.

LIGHTING THE BURNER

On the earlier models, this was done by holding a match flame to the disc until the disc was hot enough to open the burner safety valve, and the burner could then be lighted. On later models a small capillary tube is brought from the gas thermostat to a point near the disc.

A push button on the thermostat body, when pressed, passes gas into this tube and a match is used to light the end of the tube, which caused a small flame to play on the disc, only as long as the button is pressed.

As soon as the disc is hot, it opens the safety valve and the burner can then be lighted. The button is then released and the lighting flame at the end of the capillary, goes out.

THE MAXIMUM FLAME

The amount of heat given off by the burner flame must match the heat requirement of the particular unit on which it is used, and to do this the correct size of the orifice in the spud of the burner must be selected in accordance with the type of gas, heat content of the gas in B.t.u. per cubic foot, the specific gravity of the gas, and the necessary rate of flow.

Data on the gas itself—B.t.u. per cubic foot, specific gravity, and normal supply pressure are available locally, but data on heat requirements of the units and on the orifice spuds are available only from Servel and their authorized distributors and dealers.

Generally speaking, however, the maximum flame should be 2 in. long and should be a blue color without a white or reddish tip. The mixture of primary air and gas to the flame is adjusted by means of the cylindrical shutter on the burner.

The maximum flame must be correctly centered in the generator flue and not play directly on the generator itself.

TROUBLE CHART

The following are some of the troubles that may be encountered and their probable causes.

Refrigerator Not Cold Enough

Condenser and absorber fins dirty. Flues need cleaning.
Thermostat set too high or out of adjustment or lost charge.
Incorrect maximum flame.
Dirt in spud orifice.
Unit out of level.
Air circulation obstructed.
Refrigerator overloaded.
Door gaskets leaking.
Evaporator needs defrosting.
Unit losing its charge.

Refrigerator Too Cold

Minimum flame too high.
Thermostat set too low or incorrectly adjusted.
Dirty valve seat in thermostat.
Thermostat bulb loose or out of its sleeve in evaporator.
Room too cold.

Flame Goes Out

Minimum flame too small.
Incorrect shutter and adjustment.
Flame too far from safety disc.
Burner too far into generator flue.
Dirt in burner orifice, or obstructed gas lines.

Odors

Gas leak.
Dirty flues.
Incorrect shutter adjustment.
Flame not centered in generator flue.

Defrosts Too Slowly

Minimum flame too high.
Room too cold.
Not defrosted often enough.
Note—When defrosting, leave ice cubes in the bottom trays.

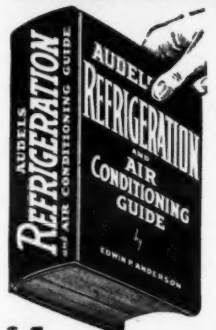
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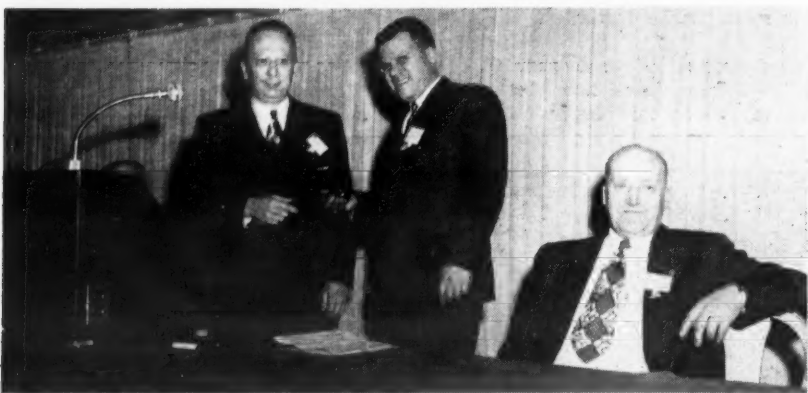
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They Will Direct RSES In 1949



1949 officials of the Refrigeration Service Engineers Society posed for this picture at the group's 11th annual convention in Chicago recently. Front row: (l. to r.) John Spence, chairman of the educational committee; M. R. Hanks, treasurer; J. D. Nall, second vice president; Charles C. E. Harris, president; A. L. Robertson, first vice president; H. T. McDermott, secretary. Second row: (l. to r.) Paul Reed, educational director; C. W. Neisel, director; C. S. Tucker, director; J. M. Locke, director; J. L. Driskell, sergeant-at-arms; Bert Miller, director. Third row: (l. to r.) W. E. Tierney, director; George Schulz, Sr., chairman of the safety committee; Cecil Visger, director; Floyd Lilley, director; Earl Yockey, director; J. V. Berger, director.



William J. Marshall (center), retiring president of the Refrigeration Service Engineers Society, hands the gavel of office to Charles C. E. Harris (left), who was elected to head the organization at its recent 11th annual convention in Chicago. Seated is A. L. Robertson, new first vice president of the society.

ASRE To Discuss Standards, Design--

(Concluded from Page 1, Column 4)

informal party on Monday night, and the annual cocktail party and dinner dance on Tuesday evening. The Baltimore-Washington section of the society is host to the event.

The domestic refrigerator forum will consist of two or three hours of round-table discussion and several short talks on such subjects as production and testing techniques, restrictor tubes, shelf material, fabrication developments, and new finishes on Tuesday afternoon.

G. K. Iwashita, chairman of the Evansville section of ASRE, will lead the discussion, which will be open to all, though intended primarily for those engineers who represent household refrigerator manufacturers.

Shreve, who was vice president in charge of apparatus sales for the General Electric Co. before assuming the leadership of the chamber of commerce, will address the "Welcome Luncheon" at 1 p.m. Monday. His topic is "The Responsibility of the Refrigeration Industry."

The 13 technical papers will be delivered in four sessions, one Monday morning, two on Tuesday, and one Wednesday morning. On Monday the papers will be of general interest. On Tuesday they will concern design developments in household and small commercial refrigerators, and unusual refrigeration applications. The Wednesday session will be devoted to frozen food storage temperatures.

The technical program, as released by C. M. Ashley, chairman of the national program committee, is as follows:

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MONDAY MORNING

"Ideal Specification for Absorbent-Refrigerant Combination"—R. M. Buffington, Servel, Inc.

"Dynamic Analysis of High Speed Compressor Valves"—E. S. Bishop, York Corp.

"Equilibrium in 'Freon-12' Water Systems"—H. M. Elsey and L. C. Flowers, Westinghouse Electric Corp.

TUESDAY MORNING

"Inherent Motor Protection for Hermetically Sealed Compressors"—B. O. Haun, Spencer Thermostat Co.

"Pressure Drop with Change of Phase in Capillary Tube"—G. P. Marcy, Westinghouse Electric Corp.

"Theory and Use of Capillary Tube Expansion Device"—M. M. Bolstad and R. C. Jordan, University of Minnesota.

TUESDAY AFTERNOON

"Ultra Rapid Cooling and the Preservation of Life"—B. Luyet, St. Louis university.

"Low Temperature Brine Cycle Refrigeration"—representative of Carrier Corp.

"Further Tests on New Ice-Salt Mixtures for Railway Refrigerator Cars"—J. M. Carbert and W. H. Cook, Canadian National Research Laboratories.

"Economical Use of Condenser Water"—Leon Buehler, Jr., Creamery Package Mfg. Co., and A. P. Bohmer, University of Iowa.

Domestic Refrigerator Engineering Conference.

WEDNESDAY MORNING

"Storage Temperature as Related to Certain Characteristics of Frozen Pork"—J. L. Hall, June Kalen, B. D. Westerman, D. L. Mackintosh, and G. E. Vail, Kansas Agricultural Experiment Station.

"The Influence of Storage Temperatures on Frozen Foods"—J. G. Woodroof, Georgia Agricultural Experiment Station.

"The Effects of a Fluctuating Storage Temperature on Frozen Foods in the Range 0° to -10° F."—Andrew Hustrulid, J. D. Winter, and Isabel Noble, University of Minnesota.

"The Effect of Freezing Rate on Vegetables"—F. A. Lee and W. A. Gortner, New York State Agricultural Experiment Station.

Wilson Plant Set For Output After Fire

SMYRNA, Del.—J. E. Wilson, president of Wilson Cabinet Co., Inc. here, has announced that full insurance settlement has been made covering the large loss the company sustained when its main assembly plant and administrative offices were destroyed by fire in July.

"Reconstruction and rebuilding is being pushed and new production facilities are rapidly nearing completion," Wilson stated.

"By the middle of December three new assembly lines incorporating the most modern paint equipment, bake ovens, power conveyor lines, and other production equipment will be in operation.

"These new and modern plant facilities will permit greatly increased production of farm milk coolers, home and farm freezers, sectional walk-in refrigerators, and a new 10.2-cu. ft. household refrigerator," Wilson said.

Production of the full line of Wilson refrigeration products is scheduled to start Dec. 15.

Chicago Quartermaster Seeks Refrigerators, Ranges

CHICAGO—Bids for the sale of 54 electric refrigerators and an equal number of domestic electric ranges with three surface cooking units are being sought by the Chicago Army Quartermaster Depot. Bids are to be opened on Dec. 27.

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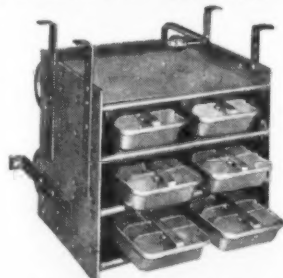
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